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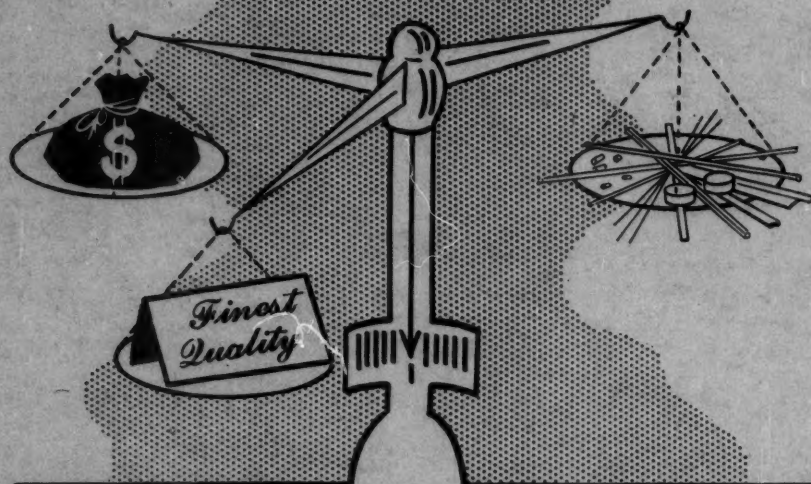
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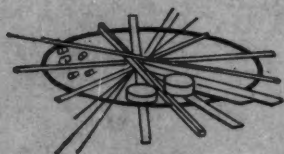
TABLE OF CONTENTS ON PAGE 2

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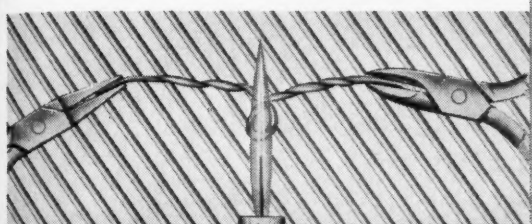
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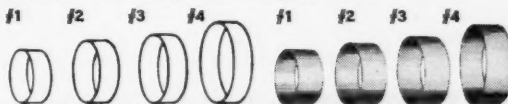
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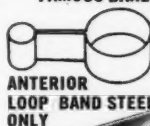
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## CONTENTS FOR FEBRUARY, 1960

# American Journal of Orthodontics

### Original Articles

President's Address, Southern Society of Orthodontists. H. Harvey Payne, D.D.S., Atlanta, Ga. ....	81
Case Analysis or Individual Case Diagnosis as Opposed to a General Philosophy. George M. Anderson, D.D.S., Sc.D., Baltimore, Md. ..	83
Words of Welcome to New Members of the Southern Society of Ortho- dontists. Charles E. Harrison, D.D.S., St. Petersburg, Fla. ....	95
Suggestions for Avoiding Errors in Treatment. Robert H. W. Strang, M.D., D.D.S., Bridgeport, Conn. ....	97
Aids in Case Presentation. Harold S. Born, D.D.S., M.S.D., Bartlesville, Okla. ....	107
Some Significant Factors Basic to Orthodontic Rationale. A. H. Lubo- witz, D.D.S., Philadelphia, Pa. ....	113

### Editorials

Very Important .....	139
Continuing Education in Orthodontics .....	140

### Department of Orthodontic Abstracts and Reviews

Orthodontic Abstracts and Reviews .....	142
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### News and Notes

News and Notes .....	146
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### Officers of Orthodontic Societies

Officers of Orthodontic Societies .....	160
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(Editorial and Business Communications on inside back cover)

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VOL. 46

FEBRUARY, 1960

No. 2

Original Articles

PRESIDENT'S ADDRESS, SOUTHERN SOCIETY OF ORTHODONTISTS

H. HARVEY PAYNE, D.D.S., ATLANTA, GA.

DR. JAYNES, DR. ANDERSON, DR. SHEPARD, OTHER DISTINGUISHED GUESTS, LADIES, AND FELLOW MEMBERS OF THE SOUTHERN SOCIETY OF ORTHODONTISTS: Welcome to Atlanta—a metropolitan city of one million people. Atlanta orthodontists are thrilled by your response to their invitation, demonstrated by your attendance at this, our thirty-eighth annual convention. We are happy to report that the registration is the largest in our history.

I want to acknowledge the fine work done by our Arrangements Committee. All orthodontists in Atlanta served on this committee, with Charles Smith as chairman. I am truly grateful for their splendid work and accomplishments, which I hope are going to make this the most successful convention we have ever had. They want your visit here to be a memorable one.

An outstanding job was done by Marvin Goldstein and Lafayette Barrett in securing a very large number of commercial exhibits. These concerns go to considerable expense to bring their materials and equipment here for us to see, so I urge you to visit with them and purchase whatever you anticipate needing for your office in the near future.

I am sure that you join me in saying "thanks" to our Program Committee. After you have heard our noted essayist and seen the splendid array of table clinics, you will know what a fine job they have done. This committee is composed of Prescott Smith, Hal Terry, and Charles Harrison (chairman).

In any organization, a large portion of the work falls to the secretary, and it is always wise to have a good one. It so happens that this year we have had a very good one. I want to express my gratitude to Bill Oliver for his wonderful cooperation.

Presented at the thirty-eighth annual meeting of the Southern Society of Orthodontists in Atlanta, Georgia, Oct. 12, 1959.

The honor of serving as your president has been an enriching experience, which I shall always remember and for which I am very grateful. Coming, as it has, in the autumn of my life, I hope that I may be pardoned a few observations about our profession.

We are a rapidly growing group, and we have a large percentage of young men, upon whose shoulders must fall the responsibility of excelling us of the older generation in research, in the continued promotion of highest ethical standards, and in dedication to service.

Whether we are old or young, we have our problems. It has been aptly said that one who does not have problems either is walking around in a self-induced coma or is looking over his shoulder from "cloud 9."

We have problems of diagnosis, we have problems of treatment, we have problems of retention, and we have problems of good will not only with the public but with the dental profession as well.

How can we solve some of these problems? I believe that some can be solved by more consultations among ourselves. Dr. William Wilson of Boston, speaking at the Golden Anniversary Luncheon in Detroit, wisely counseled: "Let us reason together." I believe it is the mark of a strong man.

Do you like to go fishing alone? Do you like to play golf alone? Let us not practice orthodontics alone. Let us share our knowledge and gain knowledge from others.

In addition to our problems, we have responsibilities. We have responsibilities to the orthodontic profession. We have responsibilities to the dental profession. We have responsibilities to the community in which we live.

In some degree, we are responsible for the orthodontic problems of the people of our community. We are here to render orthodontic service. In rendering this service, we are entitled to a reasonable fee. Occasionally, there comes to our attention a person who desperately needs our services but who cannot pay a reasonable fee. I do not subscribe to the theory of total charity, but I do believe that in these cases we should accept part of our pay in the satisfaction of a deed well done, a little life set on the higher road of pride and self-satisfaction. There is no greater reward.

## CASE ANALYSIS OR INDIVIDUAL CASE DIAGNOSIS AS OPPOSED TO A GENERAL PHILOSOPHY

GEORGE M. ANDERSON, D.D.S., Sc.D., BALTIMORE, MD.

NO MATTER what facilities are available to aid in case analysis, a controlling answer on which we base our therapy is what experience has taught us. As the years pass, we depend more and more on insight and hindsight to keep our percentage of losing battles low, though during our diagnostic studies we may have had the assistance of the most modern aids. I am going to discuss several cases from the largest typical group (protrusions) of my practice. Since this group represents over 50 per cent of my patients, these cases get a fair share of re-evaluation as they pass from active treatment into retention and postretention. The repeated failure to comprehend what one does or fails to do not only reflects on one's reputation but leaves dissatisfied parents and patients to turn up at the most inopportune time and place. We ought to view every new case as an individual problem, weighing its favorable aspects against its questionable aspects, and not accept it for treatment until we satisfy ourselves that it can be corrected and that we have the knowledge and ability to handle it. John Dryden, who was not an orthodontist, in speaking of other matters, said that his greatest problem was to know when to choose or reject. For us, the same statement applies not only with regard to case selection but with regard to ideas relating to treatment procedure as well.

Angle<sup>1</sup> wrote: "In studying a case of malocclusion give no thought to methods of treatment or appliances until the case shall have been classified and all peculiarities and variations from the normal have been thoroughly comprehended. Then the requirements and proper plan of treatment become apparent."

Fifty years later that is still sound advice, although the optimism expressed in the last sentence is not always justified.

For several years while assisting a very able orthodontist who was an Angle graduate, and for a long period thereafter, I followed methods of treatment of malocclusion of the teeth that were based on diagnosis and classification outlined by Dr. Angle. A good many unsatisfactory cases resulted. Obviously, there was something wrong. Had I failed to understand? If I did understand, had I failed to apply through therapy, methods which could be shown by others to produce satisfactory results? It took a long time, but after much reading, observing,

<sup>1</sup>Presented before the Southern Society of Orthodontists, Atlanta, Georgia, Oct. 12, 1959.



and talking, I came to the conclusion that my trouble lay in not doing just what Angle had told us to do. I had not comprehended the "peculiarities and variations" which Dr. Angle had told us to be careful to observe. Every case has them, although some are not too obvious and we miss them as we accept the *gross* picture of the problem when beneath the diagnostic surface, like an iceberg, lie the most dangerous and treacherous areas.

CASE 1.—The patient was a 12-year-old boy whose maxillary teeth appeared to protrude. This seemed an incorrect assumption and was attributed to the small lower dental arch as evidenced by the lack of space for first premolars. Treatment, therefore, was designed to do little in the upper arch except to change the inclination of the maxillary incisors and concentrate on enlarging the lower arch to allow for premolar eruption. This was pretty well accomplished, but the boy failed to wear his retainers, the upper of which was made with a

Fig. 1.

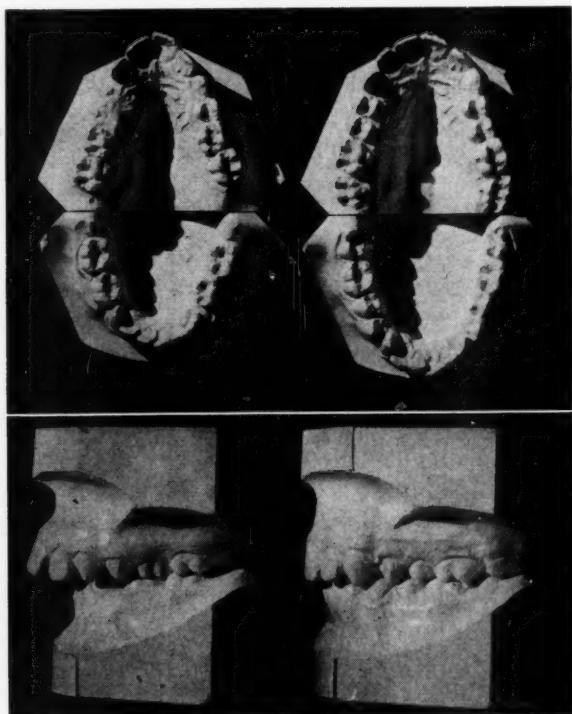


Fig. 2.

Fig. 1.—Case 1. Before and after treatment. Note insufficiency of mandibular arch to contain right and left first premolars.

Fig. 2.—Case 1. Major treatment effort to enlarge mandibular arch to make space for first premolars. This reduced apparent maxillary protrusion.

flat bite plate to keep the bite from deepening. The result was crowded lower incisors. The parents were not happy, and neither was I. Hindsight indicated that extraction of four premolars would have been advantageous, reducing the apparent maxillary protrusion and keeping the lower arch within its inherent limit of alveolar growth. By this method, all the teeth, even the third molars, would probably have had space for satisfactory occlusal alignment, which x-ray examination indicated that the third molars did not have at completion of treatment.

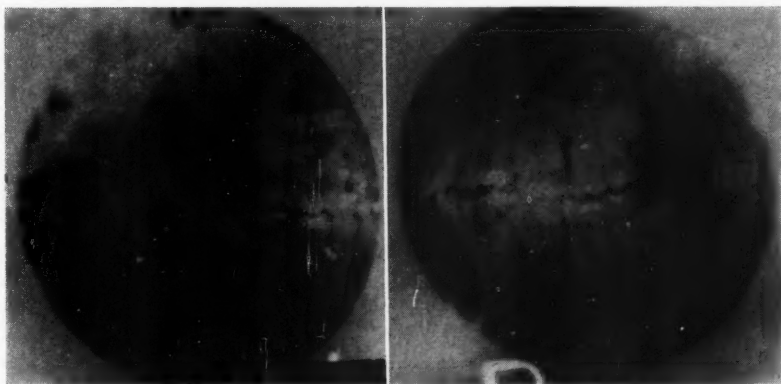


Fig. 3.—Case 1. Molars at finish of treatment. The arch apparently is not large enough to contain sixteen teeth. When this roentgenogram was taken, the incisors were "straight."

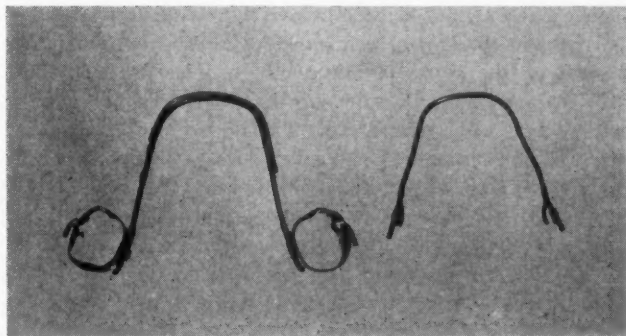


Fig. 4.—Case 1. Lower lingual arches used. A shows size of wire at beginning of treatment. B shows size when arch was apparently enlarged sufficiently to contain the first premolars.



Fig. 5.—Case 1. Profile at finish of mandibular arch enlargement.

After selecting this case for presentation here, I asked an orthodontist in whom I have the utmost confidence to give me his analysis from original and completion records. His analysis is so well expressed that I shall include it here.

The casts of your case arrived today. Frankly, I think that the significant improvement should make the parents and patient quite happy. You achieved a great deal by opening up enough space for the first bicuspid. It is always easy to treat a case in retrospect. Having seen the head plate and casts, I probably would have removed four first bicuspid and treated it that way, feeling that I would then have adequate space in all probability for the third molars to erupt later. Now it is a case of still losing four teeth, and the irregularity is still present in the lower incisor region. But the face looks good from the head plate and is not full, and it might well have been the case of having the upper incisors too far lingually inclined if teeth had been taken out. It is the old story of needing space for about one-half or three-quarters of a tooth. Right now, it looks like the decision is either to let it go, which is not a bad one, or to take out the lower incisor and align these teeth. But the danger of increasing the overbite is always there, and I wonder whether it is better to have regular lower incisors with a deep overbite or irregular lower incisors but with a relatively stable overbite. Since the lower left central incisor shows some stripping, and since bringing the cuspids into the arc would probably take up most of the space if this tooth were removed, it would not be too bad to remove the lower incisor. But I would sure keep a lower cuspid-to-cuspid fixed lingual retainer on there for a long time afterward. The question of the role of the third molars in causing irregularities is a moot one. We have no evidence that third molars actually do cause the irregularity, and Harry Sicher maintains categorically that third molars cannot and do not exert pressure. Clinically, it seems to me that they do. This is one of the subjects for future research and study. Functionally, this is a good result. The muscle perversions have been eliminated, esthetics I am sure are greatly improved, and we have no assurance that original treatment with the removal of four first bicuspid would have produced any better result. Certainly, the facial balance and tooth inclinations on the head x-ray now are quite acceptable.

I refer again to Angle's<sup>1</sup> *Malocclusion of the Teeth*. On page 44 he describes distocclusion, or Class II, Division 1. I do not think that he knew how many "peculiarities and variations" exist in this large area of practice. In defining the Class II, Division 1 relationship, Angle said: "When from any cause the lower first molars lock distally to normal with the upper first molars to the extent of more than one-half the width of one cusp on each side, it must necessarily follow that every succeeding permanent tooth to erupt must also occlude abnormally with all the lower teeth being forced into positions of distocclusion, thereby causing more or less retrusion or lack of development or both of the entire lower jaw." That is true of some cases. It is not true in a great many cases of similar appearance, and it is to those cases that I shall confine the remainder of this article. A strict interpretation of the above definition, which places all protrusions with molars locked distally within one type or class, will honeycomb a practice with cases that cannot be successfully or permanently resolved, for the basic problem in many cases is not a distal relationship of the lower teeth, a retrusion, or a lack of development of the entire mandible.

In fact, the mandible is often of good size and form with ample room for evenly aligned incisors and third molar eruption. The lower teeth and jaw do



not belong in the discussion. The problem is a *mesial positioning* of the maxillary teeth. Thus, while a locking of the molars simulates Angle's Class II, Division 1, or his defined distoclusion, the problem is in the maxillary arch, and treatment should be based on this observation. The maxillary teeth must be moved back, as a full arch if possible or with the aid of extraction if the full arch seems impossible. In fact, unless you are an intermaxillary man, there need be no appliance in the mandible, and if you *are* an intermaxillary man the lower appliance is there purely as a base for anchorage for elastic hooking and for no tooth movement whatsoever. All protrusions with molars locked distally are not alike, and there is great need for differentiation. About twenty<sup>2</sup> and ten years<sup>3</sup> ago, when I became so convinced, I wrote papers on these observations, and the years have left me with no doubts that we have far more mesial positioning of the maxillary teeth than we have true distoclusion of the mandibular teeth and jaw. I believe that we see few true distoclusions, which by definition require emphasis on lower teeth and arch therapy. An increasing number of good and permanent results has satisfied me that, even though it took me a long time to be convinced, I am finally on the right track.

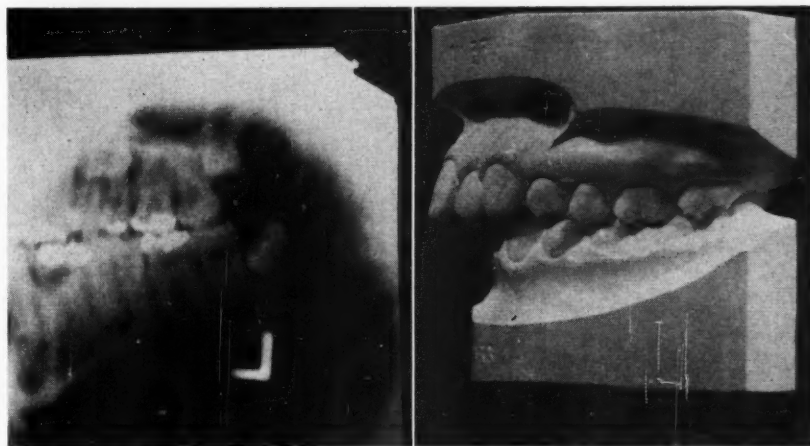


Fig. 6.—Case 2. Apparently a Class II, Division 1 case, but more correctly a mesioclusion of the maxillary teeth with a mandibular arch of good size and a reasonable molar space area. This type is now diagnosed as Class II, Division 1, dental.

CASE 2.—The patient was a 12-year-old boy whose molar relationship indicated a Class II malocclusion. The maxillary teeth protruded. The lower jaw and arch were of good size. In such a case either distal movement of the full maxillary dental arch must be obtained or we must resort to extraction in the maxillary arch to allow for retraction of the anterior protruding segment. Extraction was decided upon as a matter of choice, with treatment confined to the maxillary arch. I do not have the finished records, for this was a consultation case and the treatment was carried through by another orthodontist; I was told that the result was good and remained so.

In appearance, this case is typical of a Class II, Division 1 case. Yet it is atypical in the sense that it is the upper arch that is forward, in contradistinction to the supposed distal position of the lower arch of teeth. The lower arch

needs no therapy; it is the upper arch which needs it, and yet thousands of similar cases have been treated with the lower arch subjected to the main therapy effort. What are the clinical observations which confirm this opinion? (1) The lower arch is excellent in size and conformation; (2) x-ray examination shows the lower jaw to be ample in size to contain all the teeth, even the third

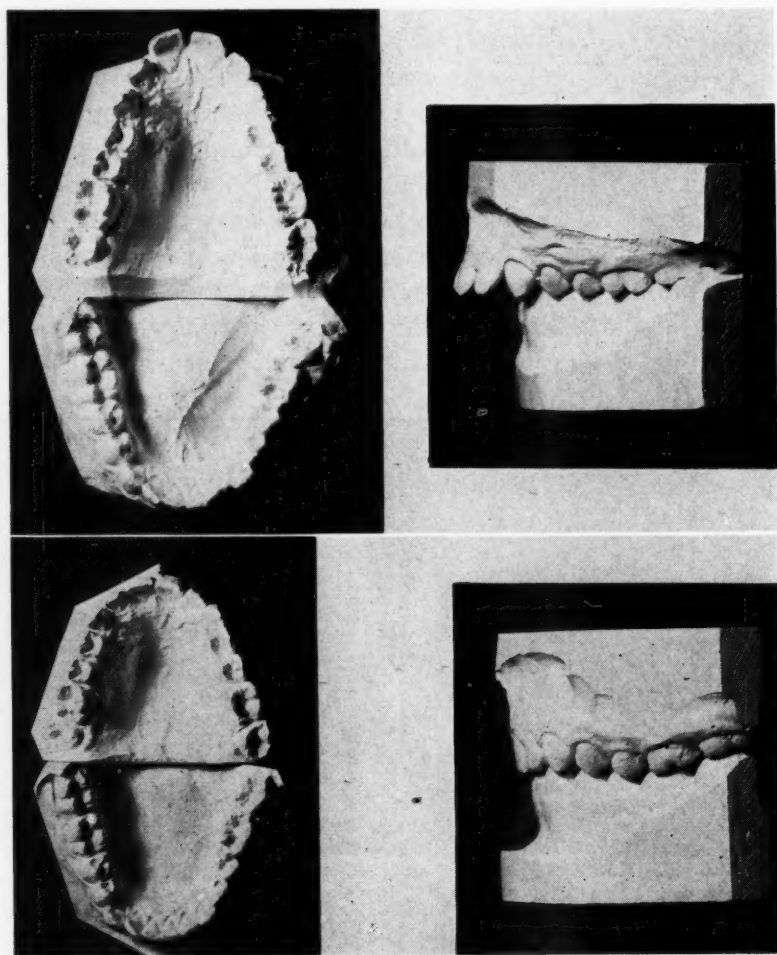


Fig. 7.—Case 3. Class II, Division 1 (Angle). The lower arch is of good size and form. The molar interdigitation is of distal appearance and the maxillary teeth protrude. Diagnosed as mesiocclusion of the maxillary teeth (Class II, Division 1, dental) and treated without extraction, the maxillary teeth were moved distally, so that the molars are interdigitated as Class I. Result justifies the conclusion that this was not a true Class II, Division 1, occlusion but, rather, a mesiocclusion of the maxillary teeth or, as now diagnosed, Class II, Division 1, dental.

molars; (3) facial balance is good, with no lower third facial deficiency; and (4) there is a bulge in the subnasal or maxillary region indicative of the forward position of the maxillary teeth. Yet the molars are locked distally, conforming to Angle's Class II, Division 1. For this pseudodistocclusion, a thorough analysis is needed to define more clearly the ultimate treatment effort.

Looking at the molars, automatically saying "Class II, Division 1," and treating accordingly is the beginning of a failure.

CASE 3.—In this case the molar relationship was distal, with protrusive maxillary teeth. The child was a good patient, and the parents were cooperative. The decision to treat without extraction was based upon the fact that cooperation in wearing the intermaxillary

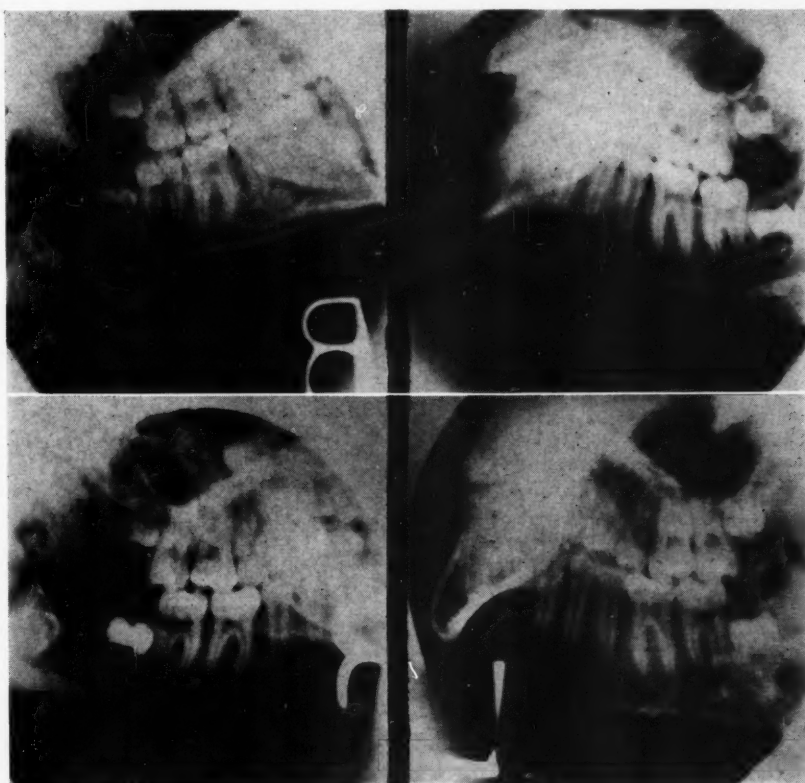


Fig. 8.—Case 3. X-ray pictures showing molar occlusion (Class II, Division 1, Angle) before treatment and same area with normal molar relationship after treatment. In each instance, a well-developed mandibular molar area indicated a mandible of good size. Though distoclusion in original appearance, it was diagnosed as mesiocclusion of the maxillary teeth (Class II, Division 1, dental) and treated accordingly.

elastics would be forthcoming. Slow distal movement allowed the molars to maintain a good vertical relationship and the result, with retention for the maxillary incisors at night only for one year, has proved excellent after several years.

CASE 4.—In this case the molar relationship was distal. The patient presented an overbite and protrusive maxillary teeth. Two years' treatment as a Class II, Division 1 case by a competent but idealistic orthodontist had been unsuccessful. Because of this, a decision to extract the upper premolars was made, and the anterior segment was retracted. The result was satisfactory, with good interdigitation of teeth following treatment of less than two years.

CASE 5.—The patient, a 9-year-old girl, had a distal molar relationship, overbite, and protruding incisors. There was some slight crowding of the lower incisors. The case appeared to be nearer a true Class II, Division 1 than any of the other cases shown here.



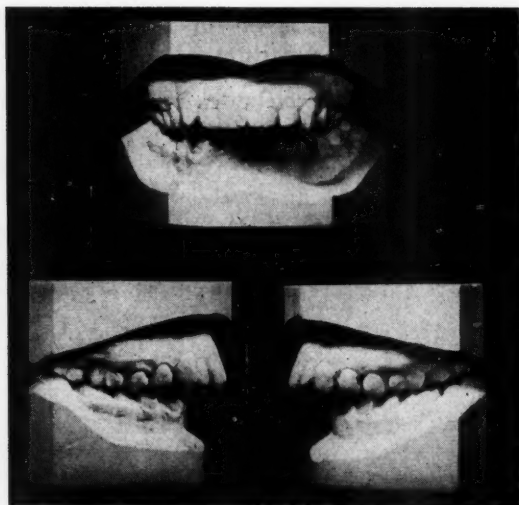


Fig. 9.—Case 4. This case had been treated unsuccessfully as a typical Class II, Division 1 (distoclusion, Angle). The models indicate the condition after two years of corrective effort. Diagnosed on the second try by a different orthodontist as mesiocclusion of the maxillary teeth (Class II, Division 1, dental), it was treated with maxillary second premolar extraction.

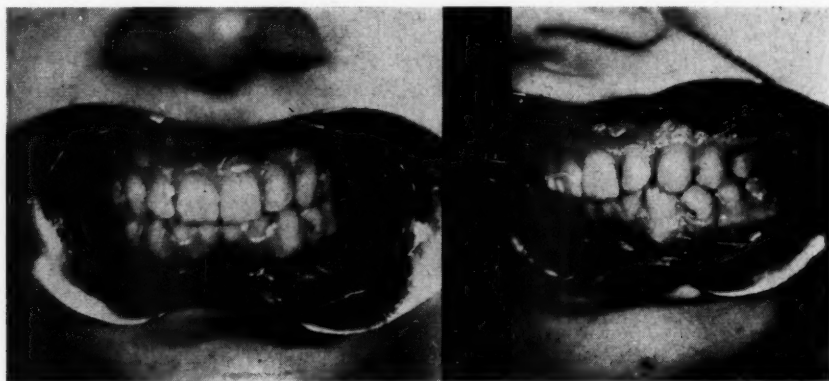


Fig. 10.—Case 4. Result of previous case with maxillary second premolar extraction, leaving molars in Class II (Angle) relationship. The interdigitation is efficient and useful for mastication. The protrusion and overbite have been favorably reduced.

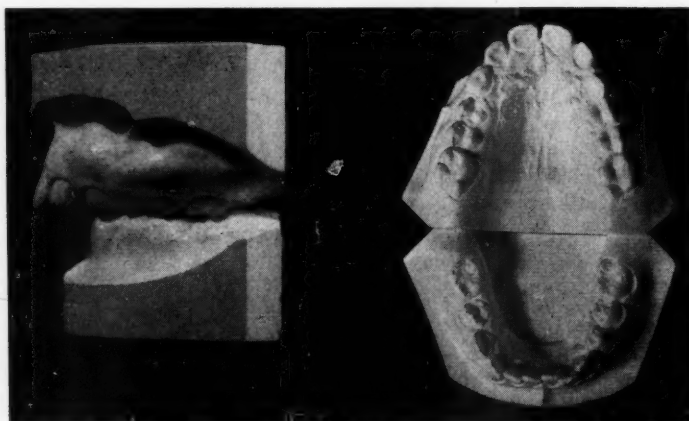


Fig. 11.—Case 5. Class II, Division 1, dental, or mesiocclusion of the maxillary teeth rather than a Class II, Division 1 malocclusion.



Fig. 12.—Case 5. Molar relationships at beginning of treatment.

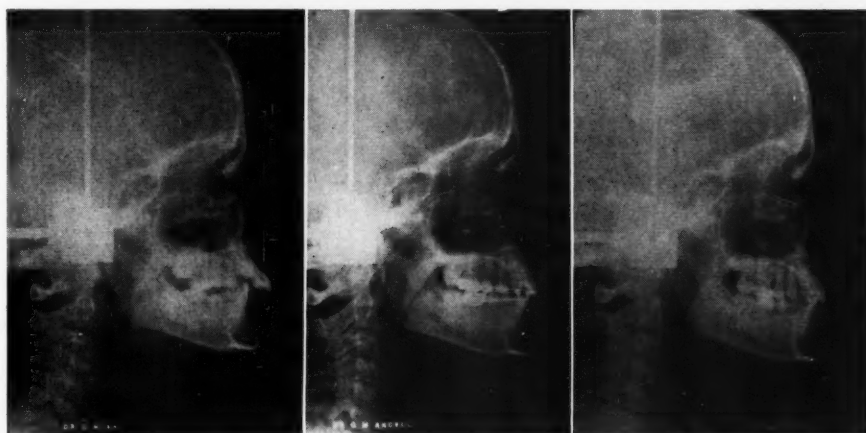


Fig. 13.—Case 5. Profiles of the patient (Case 5, Fig. 11) showing original protrusion and relationship of the maxillary and mandibular dentures.

The middle illustration shows treatment result with appliances still on teeth.

The third illustration shows the result in the retention stage one year after appliances were removed and removable retention plate for night wearing utilized.



Fig. 14.—Case 5. Molar relationships at conclusion of treatment with appliances still on teeth. The maxillary second molars are slanting distally a considerable amount.

The lower arch and jaw seemed to be large enough to provide space for all the teeth, however, although there could be an insufficiency for the third molars. The treatment plan outlined to the parents included the possibility of extraction if the entire maxillary arch retraction could not be obtained. It was obtained, however, by the use of mild intermaxillary elastics and a slight increase of dental arch size. The result has been and continues to be good.

For many years we have classified malocclusion in an arbitrary manner, applying the term "Class II, Division 1," to all cases that showed molars interlocking, with the distobuccal cusp of the maxillary first molar fitting into the buccal groove of the mandibular first molar, and protruding maxillary incisors.

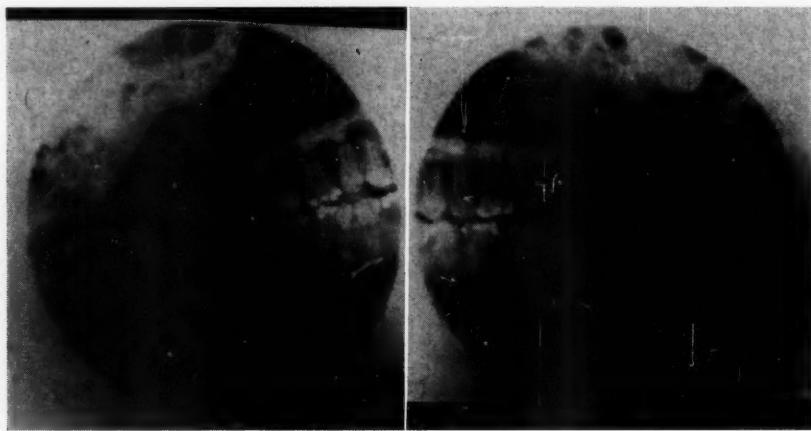


Fig. 15.—Case 5. Molar relationships following removal of treatment appliances and use of removable night plate for retention. There has been a noticeable improvement in the vertical position of the maxillary second molars.

However, many cases that appear to fit this description are not the same unless you simply want to call them that, knowing that for treatment purposes similarity to Class II lies only in the distal interlocking of the molars. A name has been coined for this type. It is "Class II, dental." True Class II (Angle definition) has been designated as "Class II, skeletal." We need something to differentiate these cases, since for many years there have been confusion, contradiction, and mishandling because differentiation had not been made clear.

There is a vast difference in treatment. If we try to correct these Class II dental (maxillary mesioclusions) by therapy planned to bring the mandibular teeth forward to occlude normally or to develop or align the dental arches, we create a worse condition than we had when we started. What we do is to create a double protrusion which cannot be retained. To make for normality and stability, we must work the maxillary teeth backward. We may conclude to do it without extraction of premolars or second molars, or we may rely on extraction to provide space for the retraction of the anterior teeth. Based on correct appraisal, the resulting tooth movement will provide a stability through both tooth interdigitation and inclination that makes relapse an improbability and retention by mechanical means a minimum requirement.

Snap judgment might seem to indicate that since movement is basically a maxillary distal movement problem, extraoral force would be the method of



choice, but the fact is that the movement may be obtained in many ways. In 1942, a meeting of the American Association of Orthodontists in New Orleans had as its main subject of discussion methods of treating distoclusion, and five distinguished orthodontists participated. Five different mechanical procedures were outlined. Each showed excellent results. What did this prove? That an appliance that is properly devised and based upon sound reasoning as to purposes, construction, and manipulation can be of almost any type and produce the desired result, provided that the diagnosis has been accurate.



Fig. 16.—The use of large, light elastic (1 inch) to slowly retract maxillary anterior teeth. It is an intramaxillary force confined solely to the one arch and is utilized in extraction cases.

Regardless of the mechanics to be followed as the finale of analysis, there is one vital decision that must be made—extraction or nonextraction. The pendulum swings. For years I worked without extracting, but I was not satisfied. Then I changed and had maxillary second premolars or second molars extracted. The results seemed better, but lately I have dropped back to a good deal of nonextraction with distal movement of the entire maxillary dental arch. I use intermaxillary force, primarily, a labiolingual or nonmultibanded technique, and mild though constant elastic force which I find does not disturb the mandibular teeth or arch. The maxillary teeth seem to go back very well. There is at first a tipping of the maxillary molars, if intermaxillary force is too great, but I have found that some months later there appears to be an adjustment and these molars seem to assume a better position. The lower incisors may take a bit of forward slant, but this does not seem to be adverse. With too much force, the lower teeth may work forward, crowding the incisors, and this certainly should be avoided by the use of lighter intermaxillary force or increased anchorage. If premolar extraction is resorted to (I have the second premolars extracted in preference to the first and carry the first back slowly with a lingual arch and loop springs), the cuspids seem to drift distally as the first premolars

are moved, and there is mild pressure of the arch or elastic on the anterior segment or incisors. There is a fairly simple and useful procedure that one can use to work the anterior teeth back. It requires no mandibular anchorage, and therefore a basic complaint against intermaxillary force or anchorage is eliminated. I refer to the use of the large (1 inch) elastic which stretches from hooks on the labial arch from about the cuspid area across the labial surface of the protruding incisors (Fig. 16). These teeth move back readily if the large elastic is worn constantly. There is such mild pressure from this sort of elastic that there is apparently no forward pull to affect the molars. The elastic's effect seems to be entirely on the anterior teeth. There is no need for mandibular anchorage; the retractive force is entirely maxillary.

My records show that there still is more extraction than nonextraction. Maybe before I finally lay down my pliers, however, I shall be right back where I started, which was almost totally nonextraction.

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## WORDS OF WELCOME TO NEW MEMBERS OF THE SOUTHERN SOCIETY OF ORTHODONTISTS

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CHARLES E. HARRISON, D.D.S., ST. PETERSBURG, FLA.

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I FEEL that I would be remiss in my duties as chairman of the Membership Committee if I did not take this opportunity to welcome the new men whom we received into our Society this morning.

I would like to say to you that the Southern Society of Orthodontists is very proud of its contribution to our profession. It is not only we who live in this Southland who speak with pride of our organization, for throughout the country you will find men who feel that we have the finest sectional society there is. We therefore welcome you and trust that you will carry on the rich tradition of the Southern Society.

You men have become a part of a wonderful profession. I know of no other branch of the healing arts which has contributed any more to the welfare of the children of America than has the orthodontic profession. Your contribution to your community will be great, and your personal satisfaction will be most rewarding.

I would like to pause one moment to remind you that you have an obligation to society, an obligation to the health and welfare of the children of your community, and I would say that you should always make your service available to the ones who need it. I am afraid that too many deserving children are denied orthodontic treatment. A price tag cannot be placed on the value of our service. Because of the investment and sacrifice in time and money which was required of you to become a qualified orthodontist, you deserve the opportunity to enjoy a good life. I firmly believe that by using good business principles in conducting your practice, you can with comparative ease develop a practice that will provide you and your family with a good life, and at the same time you can fulfill your obligation to the children of your community.

We are living in a very competitive world today where a great deal of emphasis is being placed on financial success, but we must not let our ambition surpass our compassion for mankind. I would suggest that you always conduct your practice according to the Golden Rule, as there has never been a finer criterion. If you will do this, your life will be rich and your profession will be honored.

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Presented at the thirty-eighth annual meeting of the Southern Society of Orthodontists in Atlanta, Georgia, Oct. 13, 1959.

In closing, I would like to read a poem by Edgar Guest:

THE FINER THOUGHT\*

How fine it is at night to say:  
"I have not wronged a soul to-day.  
I have not by a word or deed,  
In any breast sowed anger's seed,  
Or caused a fellow being pain;  
Nor is there on my crest a stain  
That shame has left. In honor's way,  
With head erect, I've lived this day."

When night slips down and day departs  
And rest returns to weary hearts,  
How fine it is to close the book  
Of records for the day, and look  
Once more along the traveled mile  
And find that all has been worth while;  
To say: "In honor I have toiled;  
My plume is spotless and unsoiled."

Yet cold and stern a man may be  
Retaining his integrity;  
And he may pass from day to day  
A spirit dead, in living clay,  
Observing strictly morals, laws,  
Yet serving but a selfish cause;  
So it is not enough to say:  
"I have not stooped to shame to-day!"

It is a finer, nobler thought  
When day is done and night has brought  
The contemplative hours and sweet,  
And rest to weary hearts and feet,  
If man can stand in truth and say:  
"I have been useful here to-day.  
Back there is one I chanced to see  
With hope newborn because of me.

"This day in honor I have toiled;  
My shining crest is still unsoiled,  
But on the mile I leave behind  
Is one who says that I was kind;  
And someone hums a cheerful song  
Because I chanced to come along."  
Sweet rest at night that man shall own  
Who has not lived his day alone.

\*"The Finer Thought" from *The Collected Verse of Edgar A. Guest*, copyright by Reilly & Lee Company, Chicago, 1934.



## SUGGESTIONS FOR AVOIDING ERRORS IN TREATMENT

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ROBERT H. W. STRANG, M.D., D.D.S., BRIDGEPORT, CONN.

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THERE was a time when orthodontics was a purely mechanical procedure. We can be exceedingly thankful that such an era has passed and that our specialty now has a sound scientific foundation. Consequently, the first error—and unquestionably the one that leads to the greatest of all errors—is the assumption that orthodontics can be safely practiced without knowledge of and correct application of the theoretical background now available to every student and practitioner of this specialty. Furthermore, it is always well to bear in mind that this theoretical background is constantly being strengthened by new material. Hence, every orthodontist must continue to be a student and a persistent reader of published material if he is to avoid rapid retrogression.

Next in importance is the danger of being satisfied with the treatment results that are being obtained. Technical procedures are constantly being improved, and one must ever be on the look-out for opportunities to familiarize himself with these new ideas. We must always bear in mind, however, that new ideas and procedures are not necessarily better just because they are new. Every proposed treatment modification should be carefully analyzed and tested before being introduced into one's routine. Our specialty, like all others, has been afflicted with the introduction of corrective procedures that were far from efficient with respect to the end results of their use. Most such ideas originated as easier ways of treatment or were procedures that permitted the practitioner to see more patients in a given period of time and thus increase his income. To the conscientious operator, they soon became unbearable headaches and were discarded. To the less scrupulous, they were a good commercial investment. To the specialty of orthodontics, they were degrading.

Avoid overloading your practice. The demand for orthodontic service is ever on the increase. Consequently, even the recent graduate usually does not have to wait long before he finds an abundant demand for his services. It is essential that he bear constantly in mind the fact that during these early years of practice he is building a reputation which will be of value in the years to come only in proportion to the results that he now turns out. Furthermore, in subsequent years the demand for his services will depend upon his reputation. Therefore, it is a wise orthodontist who limits the number of patients he treats, so that he will be able to devote sufficient time at every appointment to the performance of each operative task with expert skill. This cannot be done, even

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by the most skillful operator, in ten or fifteen minutes. There are far too many offices, however, in which this is a routine procedure. Of course, such practitioners are making a great deal of money, but only at the expense of the unfortunate children who are placed under their care by trusting parents. The term "racket" can be justly applied to such a practice.

We should always bear in mind that a highly efficient practice can be conducted only by a person who finds time in which to make a thorough analysis of every case before he makes any application of mechanism. Such an analysis should include not only the details of what has to be done but also an organized and detailed tabulation of appliance manipulation whereby the required correction procedures are accomplished. These deductions must be recorded in writing so that they can be referred to continuously throughout treatment. No one can carry in mind the requirements of each case. Furthermore, the work performed at each treatment must be properly recorded.

The value of complete records cannot be overestimated. When one has to record certain facts in writing, he is forced to make definite decisions. Consequently, he is obliged to think carefully over problems which otherwise might be passed over superficially and later solved by guesswork, which certainly leads to errors. Furthermore, if an orthodontist is ever brought into court by an unscrupulous parent, and the best of operators may be subjected to such an experience, well-prepared and fully kept records are the best assets that can be produced for favorable reactions.

At the initial consultation appointment, be very thorough in your examination of the patient. Do not be in too much of a hurry to look into the mouth. Get a good history and while doing this watch the patient for habits, nervous reactions, personality, and parent-patient adjustment. Then study the facial contour and look for asymmetry in the two sides. Also note whether the chin is displaced to right or left, as well as its mesiodistal relationship to the cranial portion of the head, the degree of vertical growth below the nasal area, the tonicity of the muscles, and muscular action during swallowing. A great deal of important information can be gained by such an approach. One can frequently predict the form of malocclusion that will be revealed by the intraoral examination.

The intraoral examination must also be thorough. Inclined plane relationship, axial positioning, and rotation of teeth, of course, are routine, but midline disharmony is often overlooked. If the latter is noted, then one must determine whether the error is in the maxillary or the mandibular denture, or perhaps both. Furthermore, there may be harmony in the two denture midlines and yet these may not be harmonious with the midsagittal plane of the head.

The character of the saliva should be observed. If it is sticky and mucoid, there will be a problem of oral hygiene. Caries susceptibility, as shown by the number of fillings, is important. Enlarged tonsils should not be overlooked, and also anesthesia of the pharynx is often missed. The degree of overbite and overjet, ankylosed deciduous molars, and traumatized teeth are often overlooked.

At the consultation appointment the average parent desires to have two questions answered: (1) "Is it possible to improve the facial appearance of my

child?" (2) "How much will it cost?" Consequently, the younger practitioners are undoubtedly interested in the answer to a question that now comes to *them*: "Can I give a reply to these two parental requests without making further analysis of the problems involved?" I believe that you can. You should have learned enough from this examination to know whether the case involves a growth pattern that offers improvement in facial esthetics if the deforming teeth are repositioned, or whether the growth handicap prohibits improvement. If extraction is necessary, of course, this should be mentioned. If esthetics cannot be improved but the health of the structures of the oral cavity can be bettered by treatment, this should now be emphasized. On the other hand, if conditions are so far from normal that treatment is not advisable, the orthodontist should make a frank statement of this fact.

As for naming the fee, I use the following system: I have found that I must keep the average case under treatment and subsequent observation for a three-year period. I allow two of these years for active treatment and one year for following up the treatment results. Consequently, I name an initial payment sum and a sum for consecutive monthly payments over the three-year period. I have followed this plan for many years, and it has been completely satisfactory to both parents and operator.

If treatment is requested, then the various items essential for a detailed analysis of the case must be obtained. In doubtful cases, however, I will make this complete analysis before rendering my final decision and so state at the consultation appointment.

Never start a case before you have verified in a typewritten letter all the information given to the parent at the consultation as well as that obtained in subsequent case analysis. It is a good plan to make two carbon copies of this letter and file one in the office and the other at home. In case of fire in the office, this double record will be of great value.

Now let us discuss errors in treatment which have come to me in abundant measure and which I hope that I can help you to avoid.

One of the greatest mistakes that can be made is to take a superficial view of the value of the plaster casts of the malocclusion. Since cephalometrics has entered the field of clinical orthodontics, the tendency to discard the study of these valuable plaster guides has increased. I would not for one minute minimize the importance of cephalometric analysis, for I value it highly. Those of us who practiced for years without the aid of these roentgenographic guides know, however, that the plaster reproductions of the dentures are treasure chests of information and will visualize and disclose much that is of tremendous value in treatment planning and cannot be obtained in any other manner. Consequently, in studying these casts for the purpose of accurately determining the classification of the malocclusion, you will find revealed several facts pertaining to treatment.

You will note normal and abnormal inclined plane adjustments, faulty axial inclinations indicative of tooth shifting over basal bone, abnormal tooth form, rotation of teeth and disharmony of tooth material in the two dentures, median line disharmony to be studied further in the patient's mouth, closed bite and

open-bite, excessive curve of Spee, ankylosed teeth, and various forms of so-called cross-bite. Very few of these variations from normal will be revealed so clearly by any other method at our disposal, and they are all important problems of treatment.

Of extreme importance to treatment planning is an analysis of the outline form of the two dentures as revealed so clearly in the plaster casts. I cannot emphasize too strongly the fact that the muscles environmental to the dental arches have dictated this particular form. Consequently, a denture in malocclusion is a denture in muscular balance, and treatment planning must take this into serious consideration. If one is to produce a stable result subsequent to corrective procedures, he cannot violate this inherent muscular control form. The axiom of mandibular canine width is a safety valve that is extremely dependable.

Intraoral roentgenograms are absolutely required in case analysis. Never send a patient for extraction of teeth without first making a new analysis of the intraoral roentgenograms to be sure that there are no missing teeth. I know of cases in which first premolars have been extracted when the second premolars were congenitally absent. Also, maxillary second molars have been sacrificed in the belief that third molars would replace them, but no third molars were present.

Oriented facial photographs, of course, are essential for analysis and subsequent case reporting, and the tremendous value of cephalometric films in definitely revealing growth patterns is well established.

Only by such thorough analysis of a case can an operator place himself in a strategic position for accurately outlining the details of treatment.

How impractical it would be if all this knowledge were allowed to go to seed because it was not recorded in written form! Consequently, it is imperative, if errors are to be avoided, that the requirements of treatment as disclosed in this preliminary analysis be coincidentally placed on a record for reference each time the patient appears.

The deductions having been made that individual teeth or groups of teeth must be moved in certain directions, that axial positions must be changed, that the median line disharmony must be corrected in a certain manner either by tooth shifting or condylar change, that the excessive overbite must be overcome by changes in selected denture areas, that rotations of various teeth are required, that denture relationships must be brought back to normal, or that teeth must be extracted as a treatment necessity, then the orthodontist must record in logical sequence the appliance manipulation by which these changes are to be accomplished. When an operator has detailed in written form the specific requirement of treatment, it is certain that he must select an orthodontic mechanism of sufficient efficiency to effect these stipulated tooth and denture modifications. Common sense answers the question of the choice of appliance. Furthermore, complete mastering of appliance application and subsequent modifications as required for specific tooth movements are essential if errors in treatment are to be avoided.



Having completed all these specified details of treatment planning up to this stage, the operator is now confronted with an exceedingly important decision for success. What are the so-called anchorage potentialities for use in the production of treatment specifications?

One of the prevalent causes of errors in treatment has its origin in anchorage failure. Although we frequently use the term "stationary anchorage," such an anchorage in the oral cavity is a myth. All teeth subjected to forces of displacement will move unless they are ankylosed. Therefore, the operator must devote serious thought to this problem of anchorage. Treatment in many cases must be delayed until certain teeth have erupted to serve as units in the anchorage setup. The primary tooth movement in treatment should be devoted to anchorage preparation instead of corrective activities.

In the days when denture expansion was in vogue anchorage problems were not so acute, for nearly all teeth were involved in the so-called reciprocal movement. Now, if we are to produce a stabilized result, we avoid denture expansion, which means that anchor dental units must usually be moved as little as possible and only in such a way as to make them more stable. Reciprocal tooth movement is seldom indicated today.

Proper anchorage is obtained in three ways: (1) by pitting groups of teeth against individual teeth; (2) by an appliance adjustment which assures bodily displacement of anchor units if they are to move, plus a tipping tooth movement of the teeth that are to be moved; and (3) by intermaxillary elastic or extraoral support of the group of anchorage teeth.

Sometimes factors are present which cause failure of well-prepared anchorage. One of the common ones is occlusal interference with the tooth to be moved. Excessive overbites, high and sharp cusps, and lingual occlusion of maxillary teeth are in this category. The insertion of a bite plate solves this problem.

In the movement of canines distally into spaces provided by the extraction of first premolars, the operator may see the space closing to his great satisfaction, only to awaken later to the realization that most of the space-closing has been due to the forward movement of the anchor teeth instead of the required distal movement of the canines. Failure to include second molar anchorage, as well as first molar and second premolar teeth, is probably at fault here. Often it is wise to delay treatment until the second molars have erupted. Extraoral anchorage may need to be incorporated in the appliance setup to save the situation. Here, again, the operator should look for cuspal interference associated with locking the canines and insert a bite plate if this is the case.

Perhaps the appliance adjustment is producing a depressing action on the canine as well as a tipping action. In uprighting a mesially tipped canine, the force applied should tend to elevate the tooth as well as tip it upright.

Frequently errors arise as a result of attempting to align or rotate a tooth before there is sufficient denture space provided for this movement. This indicates that the sequence of tooth movement is at fault. The evolvment of space always comes primarily and the tooth movement secondarily.

One error that may be attended with dire results is associated with the labial movement of maxillary lateral incisors at a time when the unerupted crowns of the canines are overlying the roots of these lateral incisors. Roentgenograms readily reveal this condition, and superficial indeed has been the study if this association of dental units has been missed. The roots of the lateral incisors are in danger of being destroyed by contact with the canine crowns in tooth movement. Relocating the lateral incisors must be delayed until the eruption of the canines has taken place and sufficient space subsequently provided for the lateral incisors.

The attempted lingual movement of maxillary incisors in deep overbite cases, in which there is contact between the mandibular incisors and the gingival area of the maxillary incisors, is another common error, strange as it may seem. Correction of the overbite must come primarily and the incisor movement secondarily.

That brings to mind the problem of correcting excessive overbites. This problem is a knotty one that readily leads to errors. To avoid mistakes, the operator must make careful analysis of the malocclusion to determine the denture area or areas involved in the production of this condition.

There are three important guideposts in models of malocclusion with excessive overbites which give an indication of what the prognosis should be and of the treatment that will gain success and avoid errors.

The first of these significant factors is an exaggerated curve of Spee, more clearly detected in the mandibular denture. In such a case the prognosis is good and final stability is quite certain if in treatment the molars are up-righted, the incisors depressed, and the premolars elevated. Most vital in effecting such tooth movement is mandibular second molar anchorage.

The second of these guideposts is supraclusion of maxillary and mandibular incisors associated with good vertical growth of the face in the denture area. Again the prognosis is excellent. The treatment in such a case is depression of these supracluding incisors.

An error is made in the treatment of either of these two types of excessive overbites if a bite plate is used for corrective procedures. As long as the bite plate remains in position, progress seems satisfactory. When the plate is removed, however, collapse of the elevated buccal teeth takes place because the muscle balance in the vertical plane has been violated.

The third guide to prognosis and treatment in excessive overbite cases is found most frequently in Class II, Division 2 malocclusion, but it may occur in Class I cases. Here the mandibular buccal teeth appear partly erupted while the mandibular incisors have erupted to a much higher plane. Associated with this condition is a decided lack of vertical growth in the oral area of the face. The prognosis is poor and, while a bite plate will temporarily overcome the overbite, final stability is usually unattainable. An error is made by any operator who assures a good result as far as permanent correction of the overbite is concerned. The mesiodistal variation can be corrected and stabilized, but not the corrected overbite.

Errors are frequently associated with the correction of disharmony of the median denture lines. The plan of treatment of these cases cannot be evolved from an analysis of the models alone. As in overbite cases, close study of the patient must be included in this analysis. The operator must determine the following facts:

(1) Which median denture line, if either, is in harmony with the midsagittal plane of the head?

(2) If the maxillary median line is at fault, then one can be certain that the incisor teeth have shifted toward the side of variation. On the other hand, if the maxillary median line is correctly adjusted to the midsagittal plane and the variation is in the mandibular denture, then the operator must ascertain whether the disharmony is due to tooth shifting, condylar displacement, or both.

Tooth shifting is diagnosed by faulty axial inclination of the incisor teeth, by loss of canine space on the side toward which the teeth have moved, and by the inclined plane relationship of the buccal teeth. Condylar displacement, on the other hand, is checked by the presence of lingual occlusion of the maxillary buccal teeth on the side away from the displacement, by disharmony of the facial lines, the chin being thrown toward the side of the displacement and slightly prominent, and by having the patient slowly open and close the mouth. At one stage in the downward movement of the mandible, the median line will automatically correct itself and then, in closing, the disharmony will again suddenly register itself.

It is well to mention at this time that not all cases of malocclusion, with lingual occlusion of the maxillary buccal teeth on one side, exhibit disharmony of the median line of the two dentures or are associated with a condylar shift. Furthermore, there may be unilateral condylar shift without the presence of lingual occlusion of the maxillary buccal teeth. This latter maladjustment occurs in cases in which the maxillary buccal teeth have shifted forward on one side and the patient coincidentally moves the mandible forward on this side to maintain better functional efficiency.

(3) If there is harmony of the median line of the two dentures, is this median line in harmony with the midsagittal plane of the head?

I am quite certain that the importance of analyzing the midline relationship of the dentures to each other and to the midsagittal plane of the head is not appreciated by the less experienced orthodontists and is entirely ignored by the careless and superficial operator in our special field. Consequently, this oversight can be tabulated as the cause of a great many errors in treatment. Under correct treatment, a condylar shift in a patient who has not reached adulthood will automatically correct itself, since the proper change of tooth relationship will dictate the necessity for a normal relationship of the condyle in the mandibular fossa in order to maintain functional efficiency. Of course, if the patient is of such an advanced age that the structure of the joint has become modified by years of functioning in this abnormal location, the automatic correction probably will not take place.

On the other hand, if the treatment is based upon the faulty deduction that condylar relationship is correct, then serious complications are bound to appear during the course of the corrective procedure.

Another complication in malocclusion which may lead to errors in treatment is the presence of lingual occlusion of the maxillary buccal teeth on one side of the denture. The operator must decide whether this is to be corrected by unilateral expansion of the maxillary denture or by bilateral expansion force.

In making the correct decision, the relationship of the median lines of the two dentures to each other and to the midsagittal plane of the head is again a factor of great value. The following rules must be borne in mind:

1. Bilateral expansion of the maxillary dental arch is indicated in unilateral lingual occlusion when the interproximal space between the central incisors of the *mandibular* denture is deflected from the median sagittal plane of the skull in a direction that is toward the side on which the lingual occlusion of the maxillary buccal teeth is present.

2. Unilateral expansion of the maxillary dental arch on the side of lingual occlusion is indicated when the interproximal spaces between the central incisors of both dental arches show proper harmony with one another or very little variation therefrom and also are in harmony with the midsagittal plane of the skull.

3. Unilateral expansion is also indicated when the maxillary median line has been deflected to one side by a forward shifting of the buccal teeth of the side away from which the median line had moved and when these teeth are also in lingual occlusion as well as displaced forward.

These are some of the errors that lead to mistakes in treatment. No one is immune to them. Mistakes are the things from which we gain wisdom. Someone has said: "Knowledge is what you learn from others; wisdom is what you teach yourself." It is not such a tragic fault to make a mistake for the first time. It is tragic to continue to make the same mistake time and time again.

Consequently, if the orthodontist finds that an error has crept into his plan of treatment, what should he do? The first thing is to stop treatment at once, remove the arch wires, take study models, and evaluate the situation by a comparison of the study models with the models of the original malocclusion.

Anchorage failure can usually be detected by a change in the axial position of the anchor teeth. They are likely to be tipped toward the teeth that are to be moved. If the operator has built up anchorage stability by all teeth available and added extraoral anchorage, the patient may be at fault by not co-operating in the wearing of the intra- or extraoral auxiliary. If second molar teeth were not incorporated, certainly they should be. If they have not erupted, treatment should stop until they have come into position.

Occlusal interference with the tooth to be moved should be carefully checked. The position of the bands on all teeth should be studied. An error



in the location of the buccal sheath on the molar can cause a great deal of trouble and readily upset anchor stability. The arch wires should be examined. If they have lost their resiliency, this may be the answer.

The force that is being exerted by the appliance adjustment should be carefully analyzed. Arch wires are frequently bent and distorted by masticatory stress or by uncooperative patients. Rotating devices become inactive for various reasons.

In rotating a tooth with efficiency, there must be two forces in action—one on the mesial side and the other on the distal side of the tooth so that there will be a push-and-pull action coincidentally, each in the correct direction of required movement. Furthermore, sufficient space must be present to accommodate the rotating tooth.

Overtreatment of rotated teeth, of closed bites, and of distal movements of buccal teeth should be the rule. There is almost invariably a rebound, as it were, to every form of tooth movement, and it is a mistake not to take this into consideration as the end of treatment is approached.

Muscular pressure in the form of a habit may be stronger than the force delivered by the appliance.

A new set of roentgenograms may disclose an unerupted tooth blocking the desired tooth movement. This is particularly the case in buccally displaced maxillary second molars, due to the crowding forward of developing third molars. In such a contingency, it is good treatment to extract the buccally displaced second molar and allow the third molar to take its place. Otherwise, the force required to reposition the second molar may move the buccal teeth forward, instead of pushing the third molar distally, and upset all advancement previously gained.

Finally, one should not hesitate to consult with a more experienced associate. It is no disgrace to acknowledge inability to solve a problem of this kind and to seek aid in consultation. The patient's welfare is of prime importance, and the parents will hold in high regard the orthodontist who is man enough to admit that he needs help and take all means available to obtain that aid. The orthodontist, in turn, will be the one to profit the most by the advice of the older contemporary.

In conclusion, the most prevalent causes for errors in treatment may be summarized as follows:

1. Superficial and unorganized analysis of the case previous to beginning treatment.
2. Failure to prepare a written, step-by-step plan of appliance manipulation.
3. Overloading the practice with too many patients.
4. Inefficient mechanism to perform all tooth movements required for successful treatment.
5. Failure to master the technique associated with the use of an efficient appliance.
6. Improper sequence of tooth movements.

7. Attempting to move teeth that are stabilized by occlusal interference or lack of denture space.
8. Insufficient anchorage control.
9. Failure to analyze correctly and subsequently treat excessive overbites and median line disharmonies.
10. Violation of the inherent muscular balance.
11. Inability to gain the cooperation of the patient.

To the less experienced operator, however, I would like to leave this word of encouragement. As old and as experienced as many of us are, we still make mistakes and, as a result, errors creep into our carefully planned procedures in treatment. Fortunately, the wisdom gained from years of clinical practice enables us more quickly to detect and eliminate the errors as well as reducing the frequency of their occurrence.

In orthodontics, as in all specialties, there is no easy road to success. Basic theory must be mastered and continuously kept up to date by studying. Office routine must be well organized so that there will be time available for careful and thorough attention to every case under treatment. Such objectives as social engrandizement and high financial intake, at the sacrifice of efficient service, are not conducive to professional advancement. Only by brain and manual training can errors be kept to a minimum and stabilized results attained, but the reward is worth the effort.

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## AIDS IN CASE PRESENTATION

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AT THE outset, I wish to say that to my knowledge nothing that I am going to say here is original with me. This is a collection of ideas that my partner, Dr. Hardin, and I have acquired, to a large extent, from courses given by Dr. Panky of Coral Gables, Florida, and Dr. Robert Jones of Tulsa, Oklahoma. I wish especially to thank Dr. Hardin for contributing much to our method of handling case presentations. Perhaps you may wish to utilize some of these procedures in your offices.

First of all, I think that you must have a high regard for each prospective patient, and I believe that you must have your own mind thoroughly conditioned to believe what you are saying. I would like to thank Dr. Harry Sorrels for the following definition of a patient:

A Patient is the result of some favorable reference of a friend or colleague.

A Patient is the reason for our professional existence.

A Patient is the most important person in the world when he enters our office.

A Patient is not an interruption in our work—he is the purpose of it. We are not doing him a favor by serving him—he is doing us a favor by giving us the opportunity to do so.

A Patient is not dependent on us—we are dependent on him.

A Patient is not an outsider to our practice—he is a part of it.

A Patient is not a cold statistic—he is a flesh-and-blood human being with feeling and emotions like our own, with biases and prejudices.

A Patient should be courteously advised of his problem, then courteously advised of the remedial needs to correct the problem, as well as the investment in time, energy, and money needed to alleviate it. It is our job to satisfy his problems equitably to him and to ourselves.

A Patient is like business—he goes where he is invited and remains loyal to where he is fairly treated.

A Patient is a future contact with another patient.

### WHAT THE MIND CAN CONCEIVE AND BELIEVE, IT CAN ACHIEVE

Success is such a personal matter; it seems that one makes his rules as he goes along. In every endeavor, however, and in every walk of life, there is one philosophy which will give those who embrace it success not only in the narrow acceptance of the word but also in the much wider sense of satisfaction. Those who try to "Do unto others as you would have them do unto

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you''—to give 100 per cent orthodontics—and have good public relations will have no difficulty in winning friends, support, and success. The satisfaction which comes with the knowledge that you are doing your best is the chief reward for those who follow the Golden Rule. It is better to be a 100 per center than a 50 per center, as there is so little competition.

A family seeking orthodontic treatment takes your skill more or less for granted (too much so, perhaps). What they want most, however, without being aware of it, are an understanding of their problem and absolute honesty from you.

First you must have confidence in yourself; then you must know your patients and use a well-organized presentation, educating them to want and to obtain not only good orthodontics but optimum dental health as well.

Emerson said: "If a man can write a better book, preach a better sermon, or make a better mousetrap than his neighbor, though he build his house in the woods, the world will make a beaten path to his door." Those of you who visited the twelve-chair office of Drs. Kessling and Rocke in the middle of nowhere must certainly realize that there is a lot of truth in that saying.

Case presentation starts when the patient's mother first calls your office for an appointment for examination. Properly trained personnel will make this mother feel that you are genuinely interested in seeing her child. To a large extent, the way this mother feels when she comes into the office depends on the initial telephone conversation. For instance, many a parent has the idea that she should talk personally with you. Whether she has the feeling that your office girl is not smart enough to make an appointment or whether she wants your assurance that it is really necessary for you to see her child's teeth personally is questionable. Sometimes these women are a little surprised that you do not quote a fee over the telephone, but the well-trained assistant can handle these persons with ease, sandwich them in, and yet make them feel that the appointment has actually been made at their convenience. I have seen some girls who make patients feel that they have imposed upon you by calling at all.

For the sake of convenience, we shall hereafter refer to our patient as Mary. At the first appointment, when Mary has been seated in the chair and the mother asked to accompany her (which is one of the few times the mother is asked to come into the operatory), I am notified that I have an examination waiting. After a few get-acquainted remarks, I perform an oral examination, noting any pertinent information that might be a contributing factor in the condition of the teeth and supporting structures. If certain destructive forces are aggravating the condition, corrective measures are prescribed. In about 90 per cent of our cases the "stain technique" is introduced at this first appointment. We then give the patient's mother a bottle of the stain for use at home, explaining to her that this stain is merely an aid to help both her and the child determine if she is really cleaning her teeth or just wasting her time brushing. Most children like the stain and insist on another bottle when the



first one is used. Sometimes we receive calls from mothers whose children are not patients, asking if they may bring their children in to be taught brushing with the aid of stain.

The stain technique, for those of you who are not familiar with it, was instigated at the University of Texas Graduate Department by Sumter Arnim. I think it is one of the most noteworthy contributions that have been given to the dental profession. In fact, in most cases the use of basic fuchsin dye in our offices is actually the basis of our case presentation. From the minute you instigate the stain technique, you have placed the burden of responsibility on the patient. You have not only shifted this burden from your own shoulders, but you have made the parents aware that you are interested in the care of Mary's teeth and not just in their pocketbooks. You have taken the first step toward divorcing fee from treatment. You have now planted a seed that should grow and yield many happy results for you.

At this first examination, after the teeth have been thoroughly cleaned, we tell the mother that it will be necessary to give Mary another appointment so that we can take impressions for study models and a head x-ray to enable us to make a complete diagnosis. We usually explain that it would not be fair to Mary, her parents, or us to try to make a haphazard diagnosis by guesswork. By studying these aids, we feel that we are able to attain a more satisfactory result. After the records have been thoroughly studied, the parents will be called and given an appointment for consultation at a time when both the father and the mother can be present. At that time, we will discuss the length of treatment, the investment, and just what the treatment will consist of. At the conclusion of the first visit we give the patient a brochure with her name on it, and whether or not she has made an appointment for records has no bearing on it. We feel that the whole family will gain by reading the brochure. After reading it, if they have not made an appointment for the records, they usually call and do so.

At the second visit, I usually see the patient only long enough to check and see if she has been doing a good job of brushing. I think it is an excellent idea to compliment her a little, even though she has shown very little improvement. I think that many times we are too hasty in our faultfinding with these youngsters and that if we use a little praise, they will really go to work for us. If it appears necessary then, or at any subsequent visit, the assistant again takes her through the stain technique.

I realize that some of you are going to say that in many cases you need neither a head plate nor study models for diagnosis, and I quite agree with you. However, I believe that you need them for education of the patient. Many times the only use I make of some of these aids is to point out normal growth patterns or a good tissue profile, and I explain that all that these things have shown us is that we have strictly a tooth problem.

In order ever to apply our technical knowledge, we must first have the cooperation of both the patient and the parents in wanting our service. Toward that end, we have developed our case to this point. We are now ready to

present this case to the parents, assuming that they have read the brochure. Most of you have been mailed this brochure. If you have read it I am sure you will agree that it is the most complete brochure presented to the profession to date. I have no doubt that most of you could write a better one, but I doubt if very many of you have the time. This material was written and rewritten many times, and many of you helped considerably with your criticisms when we had it in the rough draft. One paragraph that I particularly recall was the one concerning the parents' presence in the operatory. That paragraph was placed with the suggestion of Marcus Murphey; it was a point that we had completely forgotten, even though we have a little sign in our reception room asking the parent to remain there (and, believe me, unless they are invited to come in, they remain in the reception room).

As we gather around the desk for the consultation, I ask if the patient and the parents have any questions concerning the brochure. One thing that we have noted in regard to the brochure is that the introverts study it very carefully and always have several questions, whereas the extroverts take it as a duty that befalls one raising children with dental problems. None have ever resented it; nor have we ever had any who did not read most of it. We believe that the brochure is too lengthy, and when we have a reprint of it made some parts will be deleted. Mary's models are shown to the parents and discrepancies are noted, the head plate is shown and briefly explained, the plan of treatment is explained, and a case that has been treated similarly is shown to them. In discussing the case, I am careful not to point out any discrepancies in a way that might make the parent feel that we think Mary is a freak of any sort. If we find lips protruding beyond Ricketts' soft-tissue line, we mention that they are fuller than we would like in relation to other facial features. We do not say whether these are good or bad features; rather, we explain that we feel that reducing the forward position of the teeth will allow the lips to assume a more natural position in keeping with the patient's other facial features. If the patient has a good mandible or mandibular plane angle, we say so. In past years, when I was trying to sell orthodontics to the parents, I went into great detail concerning all of Mary's abnormalities and pointed out what a pity it would be for her to go through life a dental cripple. Then I would show several dramatic cases and practically assure the parents that this was just run-of-the-mill stuff and imply that we could make their child over into a thing of beauty. Yet one look at the parents would make it clear that the patient did not have a chance of being a beauty. I have since learned that, for me, there are better ways of approaching this touchy subject. We can remain honest and sincere, even though we promise nothing with respect to making a beautiful girl out of a youngster when all indications are that all we can do is give her a good occlusion. I have since learned that if you cannot say something nice about someone it is better to remain quiet. I realize that when you are dealing with abnormal patterns it is sometimes rather difficult to find something nice to say, but place yourself in these parents' shoes. No matter how homely the youngster is, she is a part of them and they love her; believe

me, love is blind, and it covers many faults. Thus, no matter how trivial the compliment may be, find something nice to say to the parent to help you over the hurdle of pointing up these discrepancies. It may be enough merely to mention that the child has a well-shaped head, a good chin button, or a good nose. These are perhaps small points to call to your attention, and probably many of the older men here in the room have been doing this for years, but I believe that some of you younger boys just getting a start will benefit from these tactics. When you really get hard up with respect to finding some nice feature to mention, other than to say that the patient has two eyes or a head, you can always find a feature that is similar to either the father or the mother and mention it. This does not necessarily mean that you like the feature, but you can rest assured that it will not displease the parent you are referring to. Generally I have found that parents will readily uncover many of the child's discrepancies that are bothering them as soon as they realize that you are not going to be critical of their one and only. It's a funny thing. I may say that my son is a brat (and he probably is), but I would rather mention it myself than have you call it to my attention.

Now, last but not least, we get to the point that I used to mention first: the investment. Thanks to Vic Benton, who got this from Bill Pugh, we do not mention the word "cost." I usually say: "Now you are interested in what your investment in Mary will be to accomplish the procedures that I have outlined. Your complete investment will be — dollars, payable over a period of — months. We do not specify how this is to be taken care of; only that it be within the specified time. It is our policy not to render statements but to give you a payment card for your convenience, showing your schedule of payments as you desire them to be set up. We have many patients who like to make a substantial initial payment and thus reduce their monthly payments; others would rather incorporate the initial payment into their monthly schedule. We do not try to tell you how to budget your finances, because we are certainly in no position to know. I may add that I have trouble enough trying to budget my own." We also tell them that if their medical and dental expenses, plus the orthodontic investment, should total enough to give them any tax exemption, they are given the privilege of paying all or any amount they desire in one year. The points of case presentation will vary considerably with different types of patients and different income groups, so that you sort of have to feel your way along. I would actually base the success of your case presentation upon your psychological ability. One thing does pertain to all cases—you should be yourself and be honest with the patient. Your honest concern over the child's dental health is something that the parents will feel. As soon as they realize that you are genuinely concerned with the welfare of the youngster, the fee ceases to become a part of the presentation; they will merely want to know in what manner they may take care of their obligation. It may be a reflection on our fees, but we have many consultations in which parents express surprise that the fee is no higher than the one quoted, and it is indeed a pleasure to

realize that you have raised the dental I.Q. of the parents to the proper standard. It is not uncommon for the father to stop at the desk as he outlines payments and tell the receptionist that we are certainly easy to do business with.

I think that one of the more important advantages of using a good brochure and spending enough time with the parents in patient education is that you have practically eliminated the reselling of your case after it is completed. I also believe that it is an excellent idea to give the parents duplicate before-and-after models, as Dr. Ricketts does. If this is too time consuming, you can give them duplicate photographs. In this way, they have a constant reminder of what was accomplished, and you would be surprised how many times the father will pull out these records at his home when a discussion of yourself or of dentistry happens to get into the conversation. I can honestly tell you that since we have become interested in this type of presentation, both Dr. Hardin and I look forward to our sessions with the parents. The shifting of responsibility from our shoulders to theirs has really made the practice of orthodontics a matter of cooperation for all participants, and our clientele has ceased to think of us as just high-priced wire benders with a racket.

Upon completion of the case, the parents will no longer say: "You did a wonderful job on our youngster but—by gosh, you should have—it cost enough." Instead, they will tell you what a wonderful job you did and say that they would do it again, if it cost twice what you charged. When you have parents leaving your office with this feeling, then you can rest assured that you have done an adequate job of educating them.

The wise men and philosophers of the ages have disagreed on many things, but on this one point they are in complete agreement: It is done unto each one of us as we believe. The principle is infallible; the practice is what we make it.



## SOME SIGNIFICANT FACTORS BASIC TO ORTHODONTIC RATIONALE

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It is only in knowing the succession of things, that natural appearances can be explained; and it is only from the examination of those appearances that any certain knowledge of this operation is to be obtained. But how shall we acquire the knowledge of a system calculated for millions, not of years only, nor of the ages of man, but of the races of men and the successions of empires? There is no question here with regard to the memory of man, or any human record, which continues the memory of man from age to age; we must read the transactions of time past, in the present state of natural bodies; and for the reading of this character we have nothing but the laws of nature, established in the science of man by his inductive reasoning. . . . The present is the key to the past.

—James Hutton, 1785.

### INTRODUCTION

ORTHODONTIC theory, diagnosis, prognosis, treatment planning and application, and posttreatment history demand that consideration be given to the meaning and significance of the singular, distinctive peculiarity of the individual malocclusion and to the anatomic and physiologic environment within which that malocclusion is manifested.

Thus, the biologic or, clinically speaking, orthodontic individuality of the patient is one of the most important factors in the treatment of a malocclusion and in the retention of the orthodontically corrected malocclusion. The uniquely distinctive features of the malocclusion of a given patient and the conditions associated with that malocclusion must be described and evaluated against the background information provided by existing knowledge of the anatomic morphology and physiology of Man and his variability, including sex differences and heredity.

According to Strang<sup>1</sup>:

Every malocclusion is inherently under a state of muscle balance which is as fixed as is the growth pattern of the bones upon which the denture is located; consequently, if stability in the final product of treatment is to be attained, the operator does not have

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<sup>1</sup>Presented before the Northeastern Society of Orthodontists, Hartford, Connecticut, Oct. 26, 1959.

This thesis, which was given as a partial fulfillment of the requirements for certification by the American Board of Orthodontics, is being published with the consent and the recommendation of the Board, but it should be understood that it does not necessarily represent or express the opinion of the Board.

to establish a balance of force play by a strategic adjustment of the teeth, which introduces more or less of an uncertainty in the problem, but simply has to preserve this fixed muscle balance by a "strategic adjustment of the teeth" in his corrective work.

Most malocclusions are stable and functional. The institution of treatment is to interfere with this stability. To the extent that treatment is within the limits imposed by the patient's morphologic, physiologic, and genetic pattern, the treatment will be successful.

The correction of a malocclusion necessarily is by means of mechanotherapy; surgical and other procedures are less often involved. Mechanotherapy exerts its direct influence on the teeth, the alveolar process, and the temporomandibular joint. The latter is affected through the use of bite planes, elastic force, and changes of the occlusal inclined plane relations of the teeth, individually or collectively. Elastic force and bite planes may affect also the pitch of the occlusal plane and the mandibular plane, as a result of their directional force or of the plane's influence upon the movement of the mandibular condyle within the temporomandibular articulation, upon the teeth and their alveolar process, or upon both the temporomandibular and the dentoalveolar components. Class II elastics obviously exert a force that tips the plane up in the back and down in front, and Class III elastics have the opposite effect.

To consider this subject adequately, it is necessary to bring together materials which supplement and explain one another with a minimum of interference, obstructive detail, unimportant qualifications, and irrelevant reference.

#### ANTHROPOLOGIC CONSIDERATIONS

In the evolution of the skull of *Homo sapiens*, the major changes have been as follows (Fig. 1):

- (1) The increased height of the vault above the external auditory meatus.
- (2) The reduction of the muzzle of the jaws and teeth. The position of the maxilla in substantially the same vertical plane as the forehead indicates the limitation of its function to mastication, the need for its use in prehension having disappeared.
- (3) The development of a chin, a uniquely interesting, peculiarly human jaw development comprising the forward liping and projection of the lower part of the mandibular symphysis.
- (4) The reduction in size and change in position of the zygomatic (malar) bones which bind together the maxillae and the neurocranium (brain case).
- (5) The marked reduction in the size of the supraorbital ridges.

In a consideration of the evolutionary changes in man, tooth size and tooth morphology supply important criteria of evolutionary changes or

modernization, whereas the present process of tooth reduction is termed "degeneration." In the majority of cases the teeth of modern man, whatever his diet and preferences, are smaller, with the number of cusps in the lower first molar reduced from five to four and with a tendency for the third

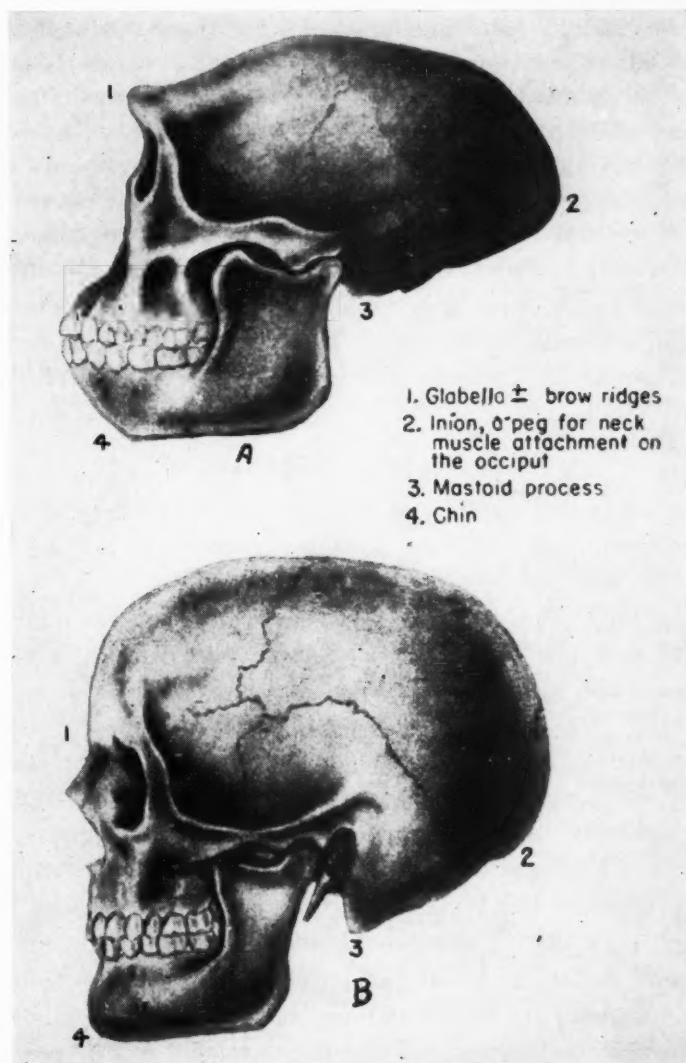


Fig. 1.—Critical points in the evolution of the human skull and jaw. A, *Pithecanthropus robustus* (after Weidenreich, 1945, plate 4). B, Modern man (European). (From Coon, C. S., Garn, S. M., and Birdsell, J. B.: *Races: A Study of the Problems of Race Formation in Man*, Springfield, Ill., 1950, Charles C Thomas, Publisher.)

molars to be either missing or impacted. Further alterations in this evolutionary sequence include loss of space between teeth and decrease in thickness of alveolar bone. Reduction in tooth size, number, and number of cusps seems to constitute a trend throughout the entire history of man. Whether tooth reduction in our present civilization is the result of heredity, nutrition, or a combination of both is controversial; nevertheless, an evolutionary trend

is apparent.<sup>2</sup> In order for an evolutionary trend to exert its influence, however, it has to be transmitted via the genetic mechanism. A striking relationship exists between tooth size and jaw size, and the whole pattern of dental changes may be part of a single complex trend. Jaws, however, do not always correspond to tooth size.

Specific indications of "degeneration" are the occasionally congenitally missing upper lateral incisor, premolar, and lower incisor. Disappearance of the upper lateral incisor does not seem imminent, despite its occasional congenital absence and signs of degeneration. The crown, when compared with the central incisor, shows many modifications: it is peg-shaped, abnormally small, and sometimes does not extend to the line of occlusion. Other than its sporadic congenital absence, in a great many cases the discrepancy in size of the upper lateral incisor results in variable spacing in the incisal segment.

Jaws, then, are independent bones with distinct characteristics linked to tooth size in a general sense only. The over-all trend has been to thinner, less rugged jaws in the present day sufficient to withstand the functional force of mastication.

#### MORPHOLOGIC CONSIDERATIONS

*Morphology* has been defined as "The branch of biology which deals with structure and form. It includes anatomy, histology, and cytology of the organism at any stage of its life history."<sup>14</sup>

Morphologically, the skull consists of two parts—the calvarium (skull less mandible) and the mandible. The face topographically consists of the orbits, the nose, the jaws, and portions of the ethmoid and sphenoid bones. All the bones of the facial (visceral) skeleton except the vomer and the mandible are paired, and all touch the maxilla with the exception of the mandible and the hyoid bone.<sup>10</sup> Except for the mandible, the structure of the face is extremely light. Normally, it is subject to no strain other than the force exerted by the mandible in functional occlusion, swallowing, bruxism, and clenching of the teeth and, to some degree, by the action of the tongue on the palate during swallowing or phonation.

The visceral (that is, facial) skeleton basically is the bony scaffolding around the upper end of the alimentary tract and only incidentally provides a skeletal housing for the eye and for the nasal portion of the airway. The face, then, while helping to form the orbital and nasal cavities, is essentially for the jaws and the jaws for the teeth. This is the fundamental relationship between malocclusion as a dentofacial deformity and its orthodontic diagnosis and treatment. The mutual relationship of the jaw and tooth components of the visceral skeleton is subject to the principles of orthodontic diagnosis and therapeutics whenever malocclusion presents a concomitant functionally or esthetically disturbing dentofacial deformity.

"Dentofacial abnormalities," observes Salzmann,<sup>3</sup> "may involve the differential growth and relative position of the jaws, the development of the



tooth germs and the teeth. The treatment of manifest malocclusion entails many procedures among which local manipulation of the oral structures by mechanical means is only one of a number of therapeutic measures."

The major postnatal change in the skull is the downward growth of the face, best described by Broadbent<sup>4</sup> as an orderly developmental growth pattern of the face of a child (Fig. 2). One of the most important growth centers in facial growth is the condyle of the mandible, with the condyle and mandibular fossa in a relatively fixed relationship connecting the mandible with the base of the skull. As the mandible grows in all directions, creating space to accommodate the growth of the maxilla together with the growth and eruption of the teeth, the growth and morphologic development of the ascending ramus act as a most important factor in the development of the facial pattern. With the teeth erupting normally, an increase in the height of the ascending ramus naturally takes place under the articular surface of the condyle; otherwise, there would be an exaggerated distance between the condyle and the mandibular fossa.

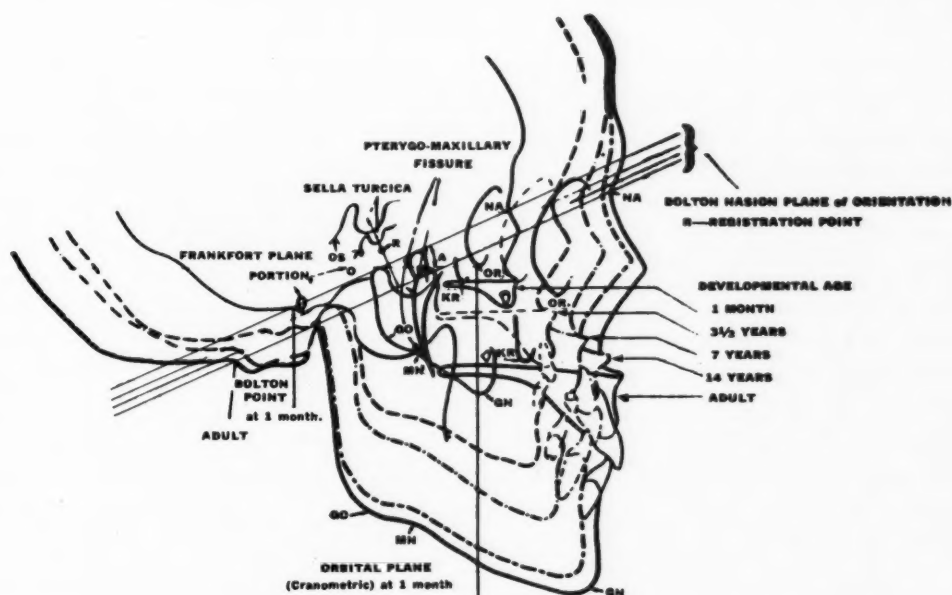


Fig. 2.—Normal developmental growth of the face from the Bolton Study records. A, Angle of Frankfort plane of the first record to the Bolton-Nasion plane of orientation. GN, Gnathion. GO, Gonion. KR, Key ridge. NA, Nasion. OR, Orbitale. OS, Occipitosphenoidal suture. MN, Mandibular notch. (From Broadbent, B. H.: *The Face of the Normal Child*, Angle Orthodontist 7: 183-208, 1937.)

With the eruptive process of the teeth constantly present, the spiral of developmental growth characteristic of the mandible continues until the age of 18 to 20 years. This cyclic phenomenon is manifested by bone deposition on the posterior border of the ascending ramus concomitant with resorption of bone on the anterior margin of the ramus and deposition of bone beneath the articular cartilage of the condyle together with the eruption of the teeth, including third molars, and the proportionate increase in height of the body

of the mandible as bone is deposited at the alveolar crest. Between the times of eruption of the second and third molars, as Krogman<sup>5</sup> pointed out, relatively slight changes occur in the dentition while vigorous bony growth in the face is going on. Until this time, the growth and development of the mandible may be compared to the pulling out of a drawer from a cabinet. The drawer can come forward until it is stopped by the limitations imposed upon it by the construction of the cabinet. The mandible, likewise, can come forward as growth takes place at the condyle because the joint remains a relatively fixed point. Though there is available space in back of the drawer as it comes forward, the area within the drawer remains constant. Similarly, though there may be more available area posterior to the last tooth as the growth centers thrust the mandible forward and downward beyond the upper face, the available dental basal bone arch length remains proportionately constant. Thus, the height of the total face is determined to a large extent by the mandible and its growth. "The growth of the upper facial skeleton," Sicher<sup>6</sup> concludes, "is obviously closely correlated to that of the mandible. Mandibular growth can even be considered the leading factor of facial growth."

No absolutely fixed relationship exists between the developmental growth of the jaws and the developmental growth of the teeth. The fact that a normal occlusion of the teeth is naturally present or has been acquired by orthodontic treatment does not mean that there has been or will be a normal pattern of developmental growth of the supporting structures or associated parts; nor does the fact that there has been a normal developmental growth pattern of jaws mean that there is associated with it a normal developmental growth pattern of occlusion. The variations are unlimited and of various degrees, and they also include the relative size of jaws and teeth to the height and weight of each individual. "The correlation between size of jaws and teeth and height and weight is not perfect, true, but it does exist."<sup>7</sup> In the growth of the jaws, development is not always sufficiently great to permit the regular alignment of the teeth, even though attained size and development be sufficient to withstand the functional forces of occlusion and to permit adaptation to the surrounding tissues and neuromuscular mechanism.

Formerly, it was considered that the eruption of the teeth caused the growth of the jaws; investigations have indicated that eruption of the teeth and the growth of the jaws are largely independent, however, and that both are subject to wide variations within limits adequate for the normal range of viability. In anodontia, despite the partial or complete absence of teeth, developmental growth of the jaws is usually sufficient to receive dentures and withstand the forces of mastication.<sup>8</sup> On the contrary, although congenital deformities of the mandible are rare, when they do occur, as in a case reported by Humphry,<sup>10</sup> they show that the jaws consist essentially of two portions—the alveolus and the remainder of the jaw. In that case reported by Humphry, the jaws in adult life preserved the proportions of infancy in so far as the body was concerned, but the teeth and alveoli had attained normal

dimensions. An equally noteworthy case, cited by Herbst and Apffelstaedt,<sup>20</sup> was that of a 64-year-old woman whose entire upper alveolar process became so detached that she was able to lift the entire structure as though it were a denture. Six years previously, this patient had experienced scurvy. Among more extremely severe manifestations of arrested dentoalveolar development, "Fox and Sabathier have cited examples of complete absence of teeth and, consequently, of the alveoli in which they are encased. Guericke made mention of a brother and sister, and of two brothers, in whom the defect of the absence of all the teeth and of their bony sockets (loges) coincided with congenital alopecia. Thurnam observed, in the same family, two cases of complete lack of development of the hair, the teeth and their alveoli."<sup>9</sup>

This separation of the jaw into two morphologic components is, as Allen<sup>10</sup> emphasized, an important one to remember for the following reasons:

- (1) The alveolar process is developed *pari passu* with the teeth.
- (2) The process is an outgrowth from the jaws for a specific purpose.

John Hunter (1728-1793) declared that the "Alveolar process of both jaws should rather be considered as belonging to the teeth than as parts of the jaws."<sup>12</sup>

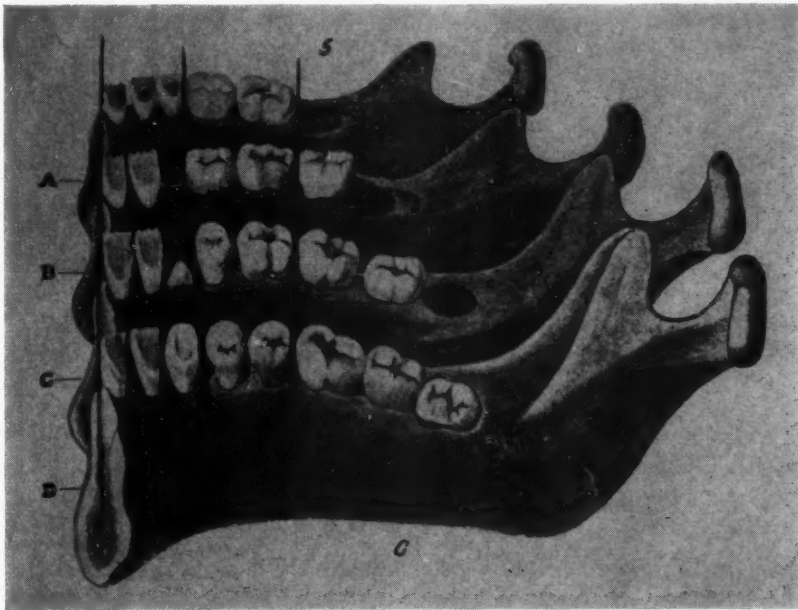


Fig. 3.—The postnatal development of the jaws illustrating John Hunter's description of the growth of the mandible and exemplifying the changes which take place in the teeth at different periods. (From Hunter, J.: *Treatise on the Natural History and Diseases of the Human Teeth*, Philadelphia, 1839, Haswell, Barrington and Haswell.)

Developmentally, the mandible is at first nothing but a shallow, hollow bar to hold tooth sacs. The ramus is small, the head is bent backward, and the angle is very large. At birth, it is about 140 degrees. With the loss of teeth, from whatever cause, the alveolar process atrophies. In old age, the bone is very small and of light structure, and the angle enlarges considerably,

so as to mimic the infantile form.<sup>10</sup> This wide variation of independent growth within the genetically controlled limits is not confined to the teeth and jaws as unitary structures but extends to include the maxillary and premaxillary components, resulting in many of the skeletal maxillomandibular growth variations with their concomitant variable occlusions, normal and otherwise.

Discussing the postnatal development of the jaws, Wallace<sup>11</sup> declares (Fig. 3): "Details apart, it would appear that the growth of the mandible in man has been as well described or illustrated by John Hunter as it has ever been described or illustrated since, and here we may give his description of the jaws from birth onwards."

Hunter's<sup>12</sup> description follows:

In a foetus three or four months old, we have described the marks of four or five teeth, which occupy the whole length of the upper jaw, and all that part of the lower which lies before the coronoid process, for the fifth tooth is somewhat under that process.

These five marks become larger, and the jaw bones of course increase in all directions, but more considerably backwards; for in a foetus of seven or eight months the marks of six teeth in each side of both jaws are to be observed, and the sixth seems to be in the place where the fifth was; so that in these last four months the jaw has grown in all directions in proportion to the increased size of the teeth, and besides has lengthened itself at its posterior end as much as the whole breadth of the socket of that sixth tooth.

The jaw still increases in all points till twelve months after birth, when the bodies of all the six teeth are pretty well formed; but it never after increases in length between the symphysis and the sixth tooth; and from this time, too, the alveolar process never becomes a section of a larger circle, whence the lower part of the child's face is flatter, or not so projecting forwards as in the adult.

After this time the jaws lengthen only at their posterior ends, so that the sixth tooth, which was under the coronoid process in the lower jaw, and in the tubercles of the upper jaw of the foetus, is at last, viz., in the eighth or ninth year, placed before these parts; and then the seventh tooth appears in the place the sixth occupied, with respect to the coronoid process and tubercle; and about the twelfth or fourteenth year, the eighth tooth is situated where the seventh was placed. At the age of eighteen or twenty, the eighth tooth is found near the coronoid process in the lower jaw and under, or somewhat before the tubercle in the upper jaw, which tubercle is no more than a succession of sockets for the teeth till they are completely formed.

In the young child the cavity for the temporal bone for the articulation of the jaw is nearly in a line with the gums of the upper jaw; and for this reason the condyle of the lower jaw is nearly in the same line; but afterwards, by the addition of the alveolar process and teeth, the line of the gums in the upper jaw descends considerably below the articular cavity; and for that reason the condyloid process is then lengthened in the same proportion.

#### ANATOMIC CONSIDERATIONS<sup>10-13</sup>

In discussing anatomic variations, Cryer<sup>15</sup> comments as follows:

No man who spends any considerable portion of his time in the study of anatomy . . . that is, in actual dissections, can fail to note how great is the number of anatomical variations he meets with. So common are these that it cannot be said with exactness which are typical anatomy and which are anatomical variations. . . . Especially is this true of the anatomy of the human head, as it is modified by climate, race, age, disease, occupation, diet and many other conditions.



The maxilla is very vascular and, like the nasal bones, has attached to it no muscles that can perpetuate a deformity. This characteristic is demonstrated in serious or crushing injuries to that bone in which recovery is likely to be rapid and thorough; therefore, unless the fracture be comminuted, its fragments will retain their position, once replaced.

The mandible, the only movable bone in the skull, differs from the maxilla in being far less vascular and in having all the muscles of mastication, including the mylohyoid and the anterior belly of the digastric, not only attached to it but exerting various forces upon it.

Much has been written concerning the temporomandibular joint, but the fundamentals remain the same. It is a compound hinge—gliding (ginglymo-arthrodial) diarthrodial joint consisting of the condyle of the mandible, the mandibular fossa, and articular eminence of the temporal bone secured in articular relationship by the capsular ligament. The synovially lubricated cavity of the articulation is completely divided into an upper and a lower compartment by the fibrocartilaginous meniscus or interarticular disc. The temporomandibular ligament, which is a lateral thickening of the capsular ligament and extends obliquely from the lateral extremity of the articular eminence to the posterolateral surface of the neck of the mandible, is the chief supporting ligament; other ligaments contribute little in this respect. The capsule is far too loose, however, to hold the mandible in place, which is accomplished principally by the muscles of mastication.

The temporomandibular joint is the most accommodating of all joints; it is rarely the site of pathology; and, all together, it withstands a great deal of abuse. Bilateral symmetry in the joint is unusual, and the variations in movement are tremendous. The movements are complicated further by variation in laxity of the ligaments and by the number of muscles acting upon various parts of the mandible in differing and even diametrically opposed actions. The movement of the condyle toward the eminentia when the external pterygoid contracts and the mouth is being opened and the retraction of the condyle into the mandibular fossa when the mouth is being closed can be palpated by placing the index finger of each hand in front of the external auditory meatus in the region of tragon or by inserting the fifth finger into the meatus.

The actions of the muscles of mastication may be best illustrated by the reaction and response of the fragments after fracture by the mandible, when the respective muscles and groups of muscles function without the usual restraining force exerted by other muscles. While the maxilla, because of the lack of muscle attachments to cause displacements, will retain its position when fractured if the fragments are replaced, the same is not true of the mandible. In fractures of the body of the mandible the distal portion is elevated by the posterior fibers of the temporal, the internal pterygoid, and the deep fibers of the masseter. The mesial portion is depressed by the digastric and other depressor muscles and the weight of the chin. As a result, the posterior fragment is drawn upward and the anterior portion is drawn downward. Fractures

of the ascending ramus produce little displacement, however, since the bone lies between the muscular planes of the masseter and internal pterygoid muscles and is splinted by them. In unilateral fractures of the neck of the condylar process the smaller fragment is usually drawn anteromedially by the external pterygoid; the ramus of the affected side is somewhat elevated by the masseter, temporal, and internal pterygoid muscles; and the main mass of the mandible, pivoting around the intact condyle, is shifted toward the injured side.

Dislocation of the mandible results from the head of the condyle passing over the lower margin of the eminentia articularis and then lodging in front of it. When the mouth is opened widely, the condyles and the meniscus glide forward. The condyles do not go forward so far as the articular disc. The latter extends as far as the anterior edge of the eminentia, which is coated with cartilage to receive it. Under ordinary circumstances, the condyles never reach that far. Obviously, as this happens the coronoid process is depressed. Now, if the mouth is opened too wide and the external pterygoid, the muscle mainly concerned in the luxation, contracts vigorously, the condyle slips over the eminence into the zygomatic fossa with the meniscus left behind. In this position the condyle is drawn upward and locked anterior to the eminentia by the temporal, internal pterygoid, and masseter muscles.

The clicking noise of the joint in some patients, sometimes encountered during the course of treatment with Class II elastics or cuspal interference, may also possibly be the result of weakness of the muscles of mastication, permitting the joint surfaces to fall apart with a slight lengthening of the ligaments and the dragging of the condyle ahead of the meniscus.

In the use of Class III elastics the only anatomic structure that seems to prevent the condyle from being pressed backward against the bony meatus and the middle ear is the postglenoid process and the strong temporomandibular ligament arising from the lower edge of the zygoma and running backward and downward. Should this ligament be weak, there will be the clinical manifestation of pain, sometimes noted in the force exerted by the use of Class III elastics. A pain syndrome is rarely associated with the anterior condylar displacement because of lack of resistance. Pain, however, often accompanies a posterior condylar displacement.

#### NEUROMUSCULAR CONSIDERATIONS

On the examination of the muscular system, particular attention must be given to a number of points.<sup>16</sup> One should first observe the muscle status, namely, the volume and contour as well as any atrophies and hypertrophies and their location and distribution. The muscles should be palpated in order to determine their consistency, that is, whether they have normal resiliency and whether they are soft or hard. The relative tonicity is determined by the amount of resistance encountered in passive motion and the extensibility at the various joints.

The question of tonus is still complicated. Tonus is a proprioceptive reflex, resulting from stimulations within the tissues of the body, and is dependent primarily on the integrity of the muscle and its peripheral innervation.

The normal action of muscles and their peripheral nerves and segmental innervation, if known, is an aid to proper evaluation of loss of muscle strength. The ipsilateral pterygoids move the jaw to the opposite side, so that in motor trigeminal paralysis the jaw deviates to the paralyzed side and cannot be moved to the healthy side.

Muscle is dependent on the functional stimuli of the nerves for its continued existence and growth. For example, the facial nerve enters the facial muscle mass as these muscles split into various muscles of expression, and the mandibular division of the trigeminal nerve enters the muscle mass of the mandibular arch as this mass splits apart to form the muscles of mastication. In this manner there is established a neurogenetic and neuromuscular pattern of muscular growth, with development and motion taking place along definite lines.

Contractility, although exhibited to some degree by all living protoplasm, is especially characteristic of muscular tissue. The sum of the contractions is expressed in motion and takes place along definite lines to bring about certain movements.

Orthodontic therapy is largely concerned with the group actions of muscles, and such actions are related to the functions as well as the anatomy of the individual muscles. Contraction of a single muscle of the face or the muscles of mastication is scarcely possible. The movements of the mandible, not of the muscles, are represented in the central nervous system; a muscle is associated with one group for one action and with a different group for another, possibly even antagonistic, action.

The muscular influences to be considered in orthodontic therapy are the muscles of the facial group, particularly of the mouth, together with those of the tongue and of mastication. Because fascia is closely allied with all the muscles, including those of the face and mouth, and varies in thickness, density, fat accumulation, elastic fibers, and tissue fluid, it must be regarded as part of a functional as well as a significant morphologic factor in orthodontics.

The mass of fat between the buccinator and masseter muscles, *la boule de Bichat* (buccal fat pad or sucking cushion), is another important morphologic factor in clinical orthodontics. It aids in the reception and distribution of the increased atmospheric pressure which follows the establishment of a partial vacuum in the mouth during sucking, and it prevents the buccinator muscle from being drawn in between the teeth in adults and between the alveolar processes of the infant. It is relatively smaller in adults than in infants.

In general, the origin of the facial muscles is either from the fascia or the bones of the face and the insertion into the skin. Because of a tendency to

mingle or interdigitate with their neighbors at or toward their insertions, the individual muscles seldom are separate and distinct throughout their length. The muscles of the oronasal group are the orbicularis oris, nasalis, levator labii superioris, levator labii superioris alaeque nasi, levator anguli oris, zygomaticus major, caninus, risorius, depressor anguli oris, depressor labii inferioris, mentalis, platysma, and buccinator. They elevate, depress, retract, and close the lips and cheeks. Their variations are great, but their actions are consistent. These muscles may be absent, doubled, or greatly enlarged, and they may vary greatly in size and strength; hence, they, together with the allied fascia and the tongue, exert a significant environmental functional and morphologic influence in dictating and maintaining the shape of the dental arches for each individual, imposing a limitation in treatment that reigns supreme.

The other group of muscles of primary concern in orthodontic therapy are the primary muscles of mastication innervated by the trigeminal nerves together with the mylohyoid and the anterior belly of the digastric. The primary muscles of mastication—the masseter, temporal, and two pterygoids—operate in the regions of the angle, ascending ramus, and condylar portion of the mandible, thereby controlling all mandibular movements. The group actions of these muscles have been well illustrated in the description of mandibular fracture.

The so-called “mandibular sling” consists of the masseter and internal pterygoid muscles suspending the angle of the mandible, thereby contributing significantly to a functional articulation between the mandible and maxilla with the temporomandibular joint acting as a guide. When the mandible is opened and closed, the mandible moves about a center of rotation established by the attachment of the sling and the sphenomandibular ligament. The sling exerts a great influence in establishing physiologic rest and centric relation of the mandible and, together with the other muscles of mastication, helps establish a mandibular path to centric occlusion as its superimposed denture makes its first contact with the maxillary denture. (The path of mandibular closure from this original point of occlusal contact to centric occlusion is dependent upon a normal occlusal inclined plane relationship of the teeth that is normally related to and in balance with the characteristic skeletal, morphologic, muscular, and neuromuscular pattern of the individual for denture stability and longevity. This relationship should be in balance and harmony with these muscular forces for denture stability and longevity.)

Chance error may make it possible for the occlusal inclined plane relationship to dictate an acquired terminal occlusion by neuromuscular conditioning or “muscle memory” and mandibular positioning. Nevertheless, the tremendous accommodation and tolerance of the temporomandibular joint make it no more possible to influence and control the muscles of mastication by orthodontic repositioning of the teeth than it is to move teeth beyond the morphologic and physiologic limitations determined by the masticatory and oronasal muscles (and their fascia) with the expectation that the repositioning of these teeth will influence this surrounding musculature. Because of its abnormal relationship to the skeletal and muscular patterns, respectively, the



result of unbalanced orthodontic dental and mandibular repositioning, though functionally and esthetically satisfactory, is not conducive to denture stability or longevity.

#### ORTHODONTIC INDIVIDUALITY

One of the most important factors in treatment of malocclusion and retention of treatment is orthodontic individuality. The anthropologic, morphologic, and physiologic background has been discussed; now, attention will be directed to the distinctive, unique features of and those associated with a malocclusion. To accentuate the meaning and significance of the singular, the peculiar, the individual aspects of the individual malocclusion, orthodontic thinking requires the application of living-tissue observation.

The evaluation of a malocclusion should include particular attention to its characteristic make-up and its environment, for every malocclusion brings its own environment from the past, its heredity. These factors are always present. It is impossible, however, to separate completely the influences of the hereditary and environmental factors in orthodontic treatment and philosophy. Thus, there exists the orthodontic problem of hereditary and inter-organismic environmental variations. Not much is known and little can be done about the former. The latter, in the form of nutrition, muscular forces, neuromuscular patterns, habit pressures, and general health, often can be explained and occasionally controlled to some degree. This is not to minimize other associated etiological factors that may or may not be present in any individual case.

The commonly accepted philosophy and procedure in orthodontics at the present time appear to revolve around the examination of models, photographs, radiographs, and cephalometric appraisal. These are important diagnostic aids which can be subjected to measurement and quantification. The existence in every human being of a tremendous number of characteristics that may be measurable, as illustrated by the work of Krogman, Brodie, Hellman, Wylie, Higley, Tweed, and Margolis, makes one realize that structurally all malocclusions differ in one way or another. The same holds true, of course, for the concomitant morphologic and physiologic factors.

Very often, however, examination of a malocclusion does not reveal the difficulty of determining the largely nonmeasurable, most important, and most characteristic factor bearing on the success or failure in treatment, namely, individual variability in such facial features as the origin and insertion of muscles, muscle tonicity, muscle length, neuromuscular patterns and reactions, physiologic rest, freeway space, centric relation, centric occlusion, and functional occlusion. Certain aspects of this variability have been noted by Brodie,<sup>19</sup> as follows:

It has been said that although all faces are alike and can be identified as human, yet all differ, and the recent works of Downs, Wylie, and the author, among others, have indicated the reasons why these differences exist. It has been shown quite conclusively that the complex of bones known as the face varies from individual to individual because each part shows a wide range of variation. The result of an apparently chance combination of parts gives us the final form of the face. It has further been shown that the proportions of these parts is laid down at a relatively early date and that once laid down

they change very little throughout the developmental period. Not only do the parts within any given area have a tendency to remain stable but the relationship between parts, as between maxilla and mandible, are determined at an early age and thenceforth do not tend to change.

In the cephalometric studies, inadequate attention has been paid to individuality. The investigations have been directed toward the deduction of general principles. A word of caution, however, has recently been sounded by Wylie,<sup>17</sup> who remarks: "Generalizations based on averages add to our information, but the clinician deals with individuals. Orthodontists, preoccupied with the clinical problem rather than with research, must avoid excessive reliance upon average values. . . ."

Cephalometrics has opened up undreamed avenues of investigation, and has made it possible to learn much about the fundamentals of orthodontics. In so far as much more remains to be learned, these cephalometric studies by the clinician and others interested in research will continue in the quest for answers to basic problems. As soon, however, as it becomes necessary to apply clinically this particular knowledge of orthodontics to improve occlusion, orthodontic individuality becomes of paramount importance. To apply basic knowledge clinically is to take into consideration the individuality of the patient. Consideration of orthodontic individuality thus becomes basic to orthodontic treatment.

The characteristics of a malocclusion are fundamentally the result of heredity and environment. While the role of environment must not be minimized, heredity is particularly significant relative to the morphologic aspect of occlusion. Good nutrition and muscular function are environmental stimuli to maxillary and mandibular bone growth. However, these factors will not affect to any appreciable degree the size, position, and morphology of the jaws, even though they may influence their quality. Furthermore, the size and shape of the teeth, the relative position of the tooth buds in the jaws, and their growth potential are largely the result of heredity. The position which the teeth assume in the dental arch during and after their developmental eruption is, on the other hand, very often the result of environmental influence. The result is that teeth may be forever "on the move." This is particularly so during the transition from the deciduous to the permanent dentition. At this time, in addition to the forces exerted on them by the associated musculature, including the tongue, there is lack of proximal and occlusal contact pending the eruption of succedaneous teeth; hence, individual teeth can move and/or rotate in any direction. Thus, first molars may migrate mesially. The arch length decreases and, because of the tremendous degree of accommodation in the temporomandibular joint, the maxillomandibular relationship is "on the move." At different times in each person the occlusal inclined plane relationship may dictate various degrees of maxillomandibular arch relationships that may or may not be in balance with the individual skeletal and neuromuscular pattern.

Wallace<sup>11</sup> comments:

While recognizing the independent hereditary growth of bone apart from such modifications as may be brought about by functional stimuli, we note that bone has an hereditary adaptability itself, and perhaps the jaws have this adaptability especially marked, so that we are justified in observing that while the jaws are adapted for the teeth for the various functions to which they are put, they are also adapted to the glenoid cavities and the base of the skull on which they are hinged.

With heredity so complex and with members of the same family possessing such a varied assortment of genes, children of the same parents are observed having different gene assortments, with resultant different occlusions, skeletal patterns, neuromuscular patterns, and facial features in spite of the fact that their genes are more alike than those of an unrelated group. If we recognize and accept the differences in gene distribution, we must recognize the tremendous degree of variation and individuality in occlusions and of all the associated factors and influences, measurable and nonmeasurable. In addition to this, basic anatomy, including musculature, is not the same in male and female.

The major importance of heredity to this problem may be expressed in the words of Dunn and Dobzhansky<sup>18</sup>:

Each man is unique—all we can tell is that mankind is capable of producing an almost infinitely greater collection of types than that which exists at present or existed in the past. The chance that any two human beings, now living or having lived, have identical sets of genes is practically zero, identical twins always excepted. The hereditary endowment which each of us has is strictly his own, not present in anybody else, unprecedented in the past, almost certainly not repeatable in the future.

Biologically, human differences should be viewed as facts which call for understanding and interpretation, not as qualities to be either condemned or praised.

To assume that the situation is hopeless because of hereditary factors connected with orthodontics is to lose sight of the close relationship of heredity and environment. On the contrary, the recognition of the genetic and environmental factors involved in each individual case will aid in treatment and in maintenance of the end result of treatment. The musculature exhibits the individually distinctive characteristics of variable origin and insertion, tonicity, size, length, neuromuscular pattern, action, and reaction. The implication of these striking anatomic differences is obvious as they relate to the effect of the oronasal group of muscles to the size and shape of the dental arches and the relative position of the teeth within the arch and to the effect of the primary muscles of mastication (innervated by the trigeminal nerve) on mandibular position, movement, and function. An illustration is the effect of the mentalis muscle on the mandibular incisal segment which sometimes presents almost insurmountable obstacles in the treatment. The muscle take origin from the body of the mandible below the incisors by a pair of slips which descend, convergingly, to insert into the integument above the chin point. Its anatomic relationships, bulk, and tonicity show marked individual differences, and its neuromuscular reaction varies from

complete passivity in resistance to spasmodic contractions so great that it is almost impossible to move it away from the incisors. The latter force results in the classic bunching or crowding of these teeth.

Two cases have been selected to illustrate the comparative relationship of articulated dentition in approximate centric occlusion and acquired terminal occlusion.

The first case is that of Patient W. S., a 25-year-old man. His history of eight years of previous orthodontic therapy terminated at the age of 18. One lower incisor was removed during treatment, and all third molars were removed when the patient was 21 years old. He complained of headaches, occlusal interference in the molar region, and temporomandibular discomfort.

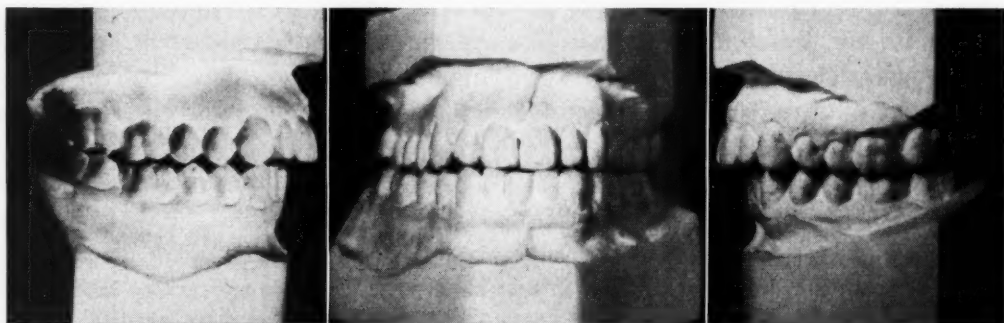


Fig. 4.—Patient W. S. Articulated models in approximate centric occlusion.

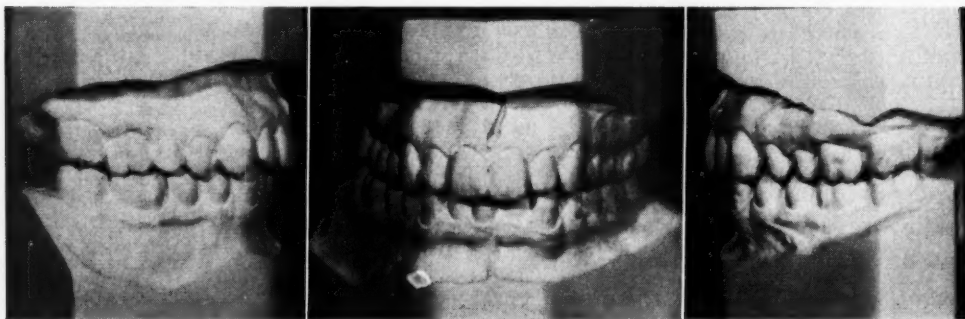


Fig. 5.—Patient W. S. Articulated models in acquired terminal occlusion.

It was the opinion of the periodontist that the disparity in the occlusal inclined plane relationship from centric occlusion to acquired terminal occlusion was too great to respond to occlusal equilibration.

In approximate centric occlusion (Fig. 4) the only occlusal contact on the right side is between the second molars, the distal portion of the first molars, and the slight touching of the buccal cusp of the lower second premolar and the lingual cusp of the upper second premolar. On the left side the occlusal contact is between the buccal cusps of the mandibular molars and premolars and the lingual cusps of the same teeth in the maxillary denture. The remaining teeth are in an open-bite relationship with an incisal



overjet. The occlusal inclined plane relationship of the teeth tends toward an Angle Class II classification with a Class I skeletal pattern.

Clinical examination, together with intraoral films, reveals an incipient aging dentition and periodontal breakdown in the molar regions due primarily to traumatic occlusion.

Examination of the articulated models (Fig. 5) in acquired terminal occlusion shows an esthetically acceptable and functional Angle Class I occlusal inclined plane relationship of the teeth, though unstable, uncomfortable, and not conducive to denture longevity.

ANGULAR RELATIONSHIP	REST	APPROXIMATE CENTRIC OCCLUSION	ACQUIRED TERMINAL OCCLUSION	DIFFERENCE	MEAN
<i>Patient W. S.</i>					
<i>Skeletal:</i>					
SNA	84	84	84		82.01
SNB	81	80	82	+2	79.97
Difference	-3	-4	-2	-2	-2.04
SNP	83	82	84	+2	
SN-GoGn	29	27	26	-1	31.00
<i>Dental:</i>					
SN $\frac{1}{1}$	110	110	110		103.00
GoGn $\frac{1}{1}$	96	96	96		91.92
NP $\frac{1}{1}$	8 mm.	8 mm.	6 mm.	-2 mm.	5.51 mm.
NP $\frac{1}{1}$	1 mm.	1 mm.	1 mm.		
<i>Patient J. H.</i>					
<i>Skeletal:</i>					
SNA		72	72		
SNB		70	71.5	+1.5	
Difference		-2	-0.5	-1.5	
SNP		72	72.5	+0.5	
SN-GoGn		33	32	-1	
<i>Dental:</i>					
SN $\frac{1}{1}$		103	103		
GoGn $\frac{1}{1}$		104	104		
NP $\frac{1}{1}$		9 mm.	9 mm.		
NP $\frac{1}{1}$		2 mm.	2 mm.		

Fig. 6.—Comparative quantitative angular and linear measurements of cephalometric tracings of cephalometric radiographs.

Fig. 6 shows a comparative quantitative study of angular and linear measurements made on tracings of cephalometric radiographs (Figs. 7, 8, 9, and 10) taken in approximate physiologic rest, approximate centric occlusion, and in acquired terminal occlusion, as well as a composite tracing.

The quantitative difference of +2 degrees in the SNB and SNP angular relationships from approximate centric to acquired terminal occlusion, respectively, is of great significance. It is the difference between a normal occlusal inclined plane relationship of the teeth plus a reduction in NP  $\frac{1}{1}$  by 2 mm., and one that tends toward an Angle Class II occlusal inclined plane relationship of the teeth complicated by an open-bite in the incisal segment. This correction was the result of repositioning the mandible anteriorly and

superiorly as it glides and slides forward into an acquired terminal occlusion. A correction of an occlusal inclined plane relationship that requires the en masse distal movement of the maxillary denture one-half the width of a premolar on each side in treatment was thus accomplished.

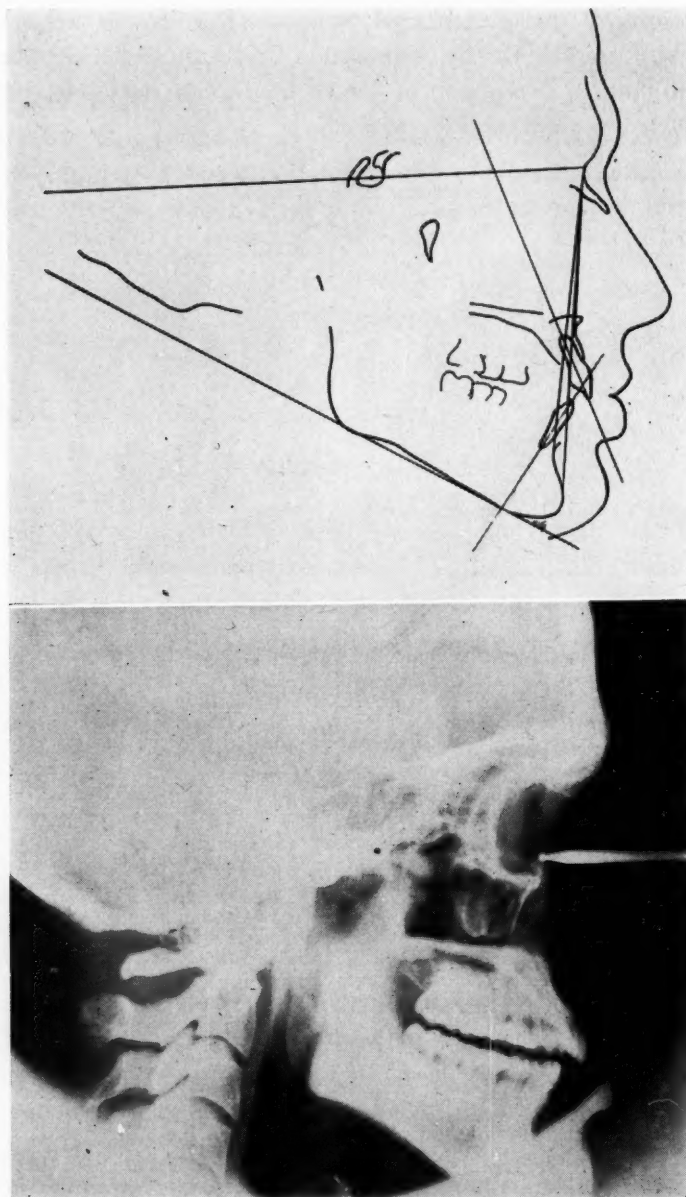


Fig. 7.—Patient W. S. Cephalometric radiograph and tracing in approximate physiologic rest.

The insertion of a bite plate removing occlusal interference by 1.5 mm. in the buccal segments eliminated all clinical manifestations of discomfort and corroborated the mandibular skeletal relationship of centric occlusion determined

by the consistent markings of the incisal edges of the lower anterior teeth on the bite plate as the occlusal surfaces began their first contact after the bite plate had been worn for three months.

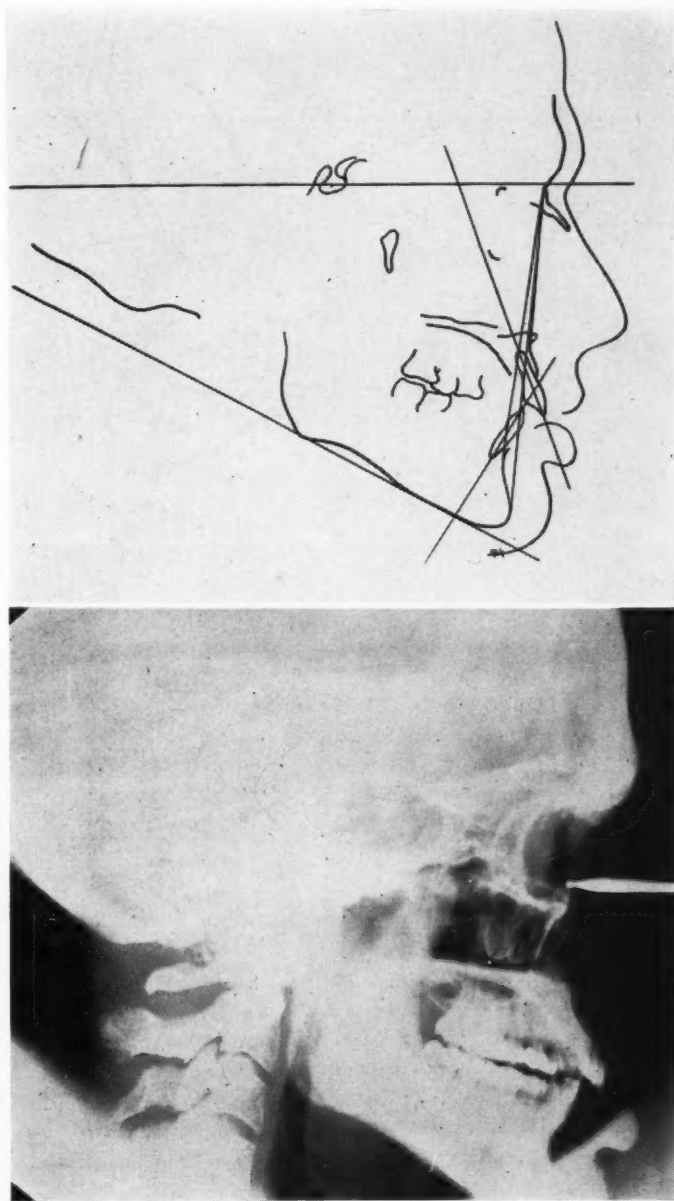


Fig. 8.—Patient W. S. Cephalometric radiograph and tracing in approximate centric occlusion.

The second case is that of Patient J. H., a 16-year-old girl, who gave a history of three years' previous orthodontic therapy. The patient complained of discomfort and a sense of occlusal interference in function. The mother

noticed that her daughter, when in repose, looked the same as she did before the institution of orthodontic therapy.

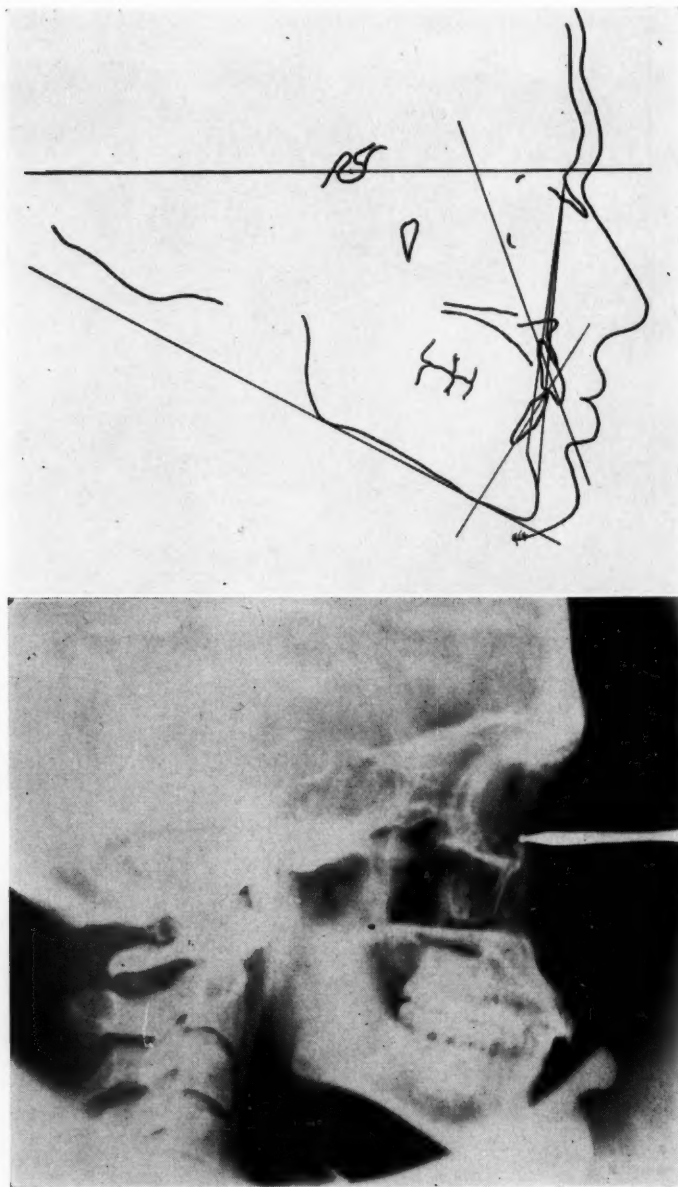


Fig. 9.—Patient W. S. Cephalometric radiograph and tracing in acquired terminal occlusion.

Clinical examination revealed the soft tissue to be in excellent health. Intraoral radiographs (Fig. 11) disclosed partial resorption of the distal and lingual roots of both maxillary first molars, probably due to traumatic occlusion.

The models (Fig. 12) in centric occlusion exhibit a tendency toward an Angle Class II classification of the occlusal inclined plane relationship of the



teeth. The skeletal relationship is Angle Class I. On both sides the only occlusal contact is between the molars and premolars, cusp on cusp. There is a marked incisal overjet and open-bite from canine to canine.

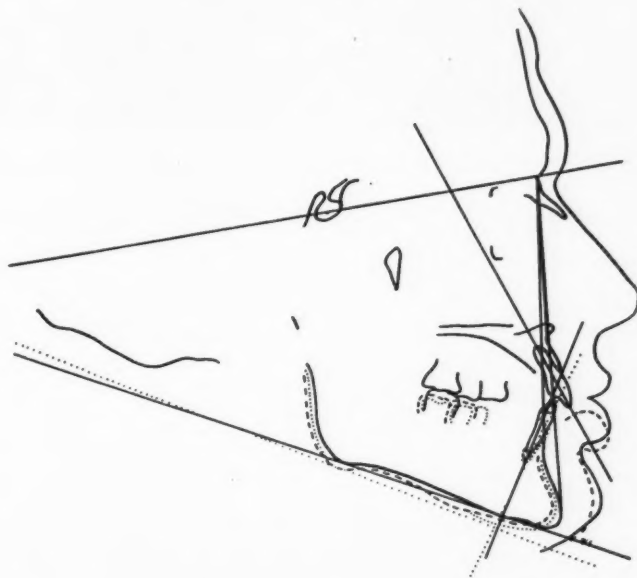


Fig. 10.—Patient W. S. Composite tracing.

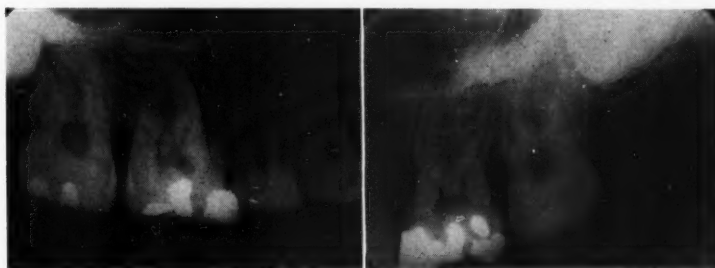


Fig. 11.—Patient J. H. Intraoral radiograph of right and left maxillary right first molars with partial resorption of distal and lingual roots.

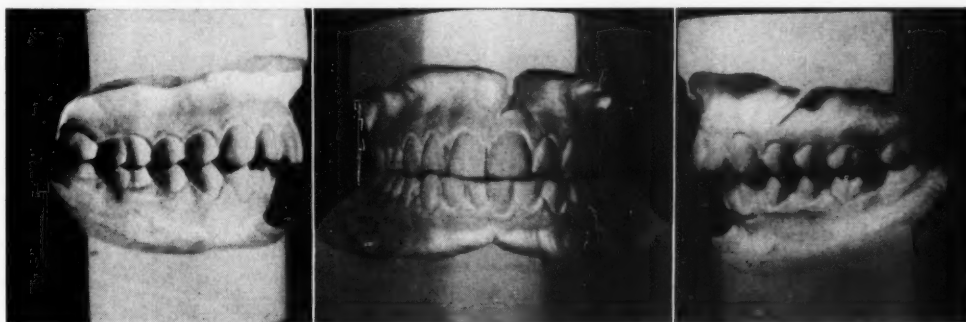


Fig. 12.—Patient J. H. Articulated models in approximate centric occlusion.

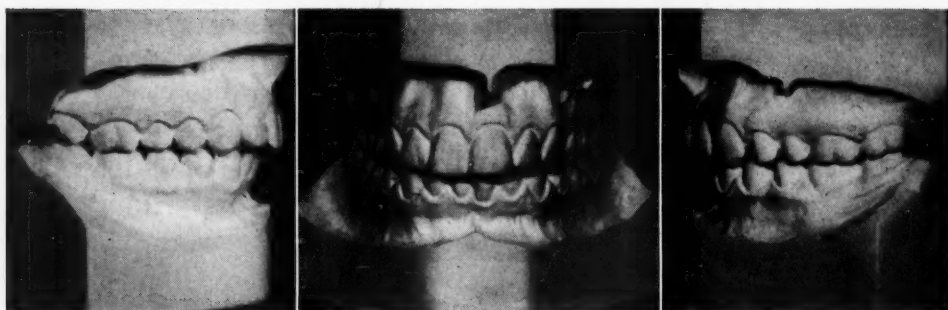


Fig. 13.—Patient J. H. Articulated models in acquired terminal occlusion.

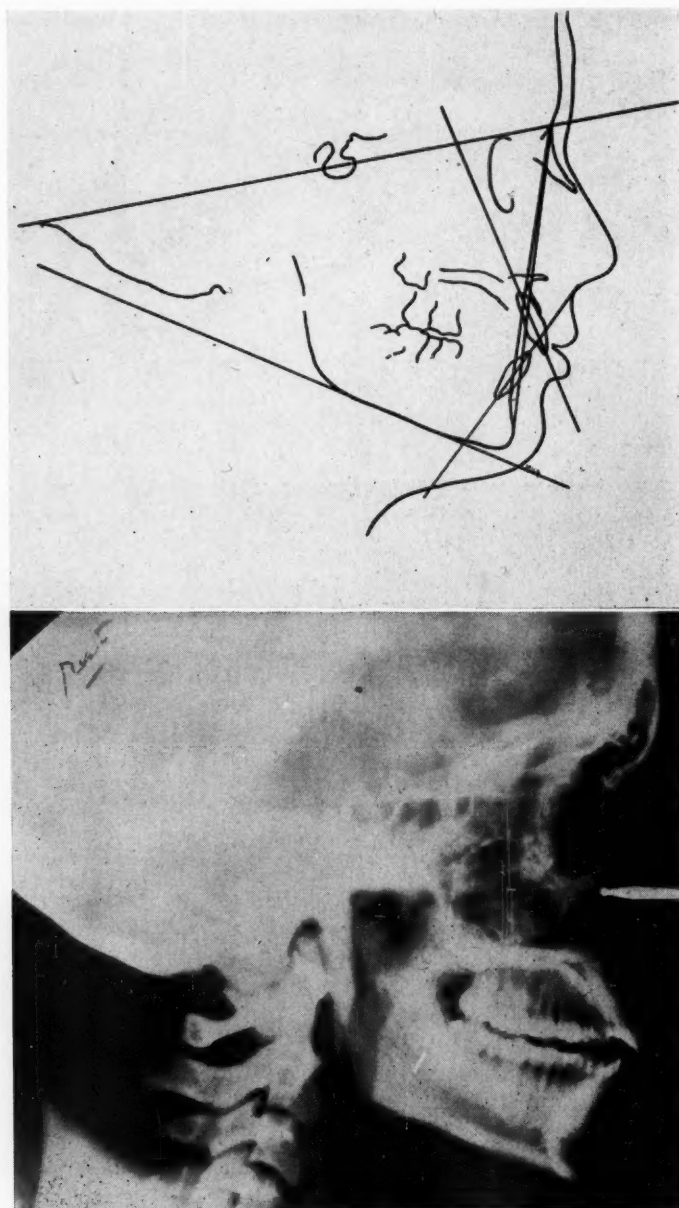


Fig. 14.—Patient J. H. Cephalometric radiograph and tracing in approximate centric occlusion.

Inspection of the articulated models in acquired terminal occlusion (Fig. 13) discloses an occlusal inclined plane relationship of the teeth which is acceptable and functional, though unstable, at times uncomfortable, non-esthetic in repose, and not conducive to denture longevity. Fig. 6 shows a

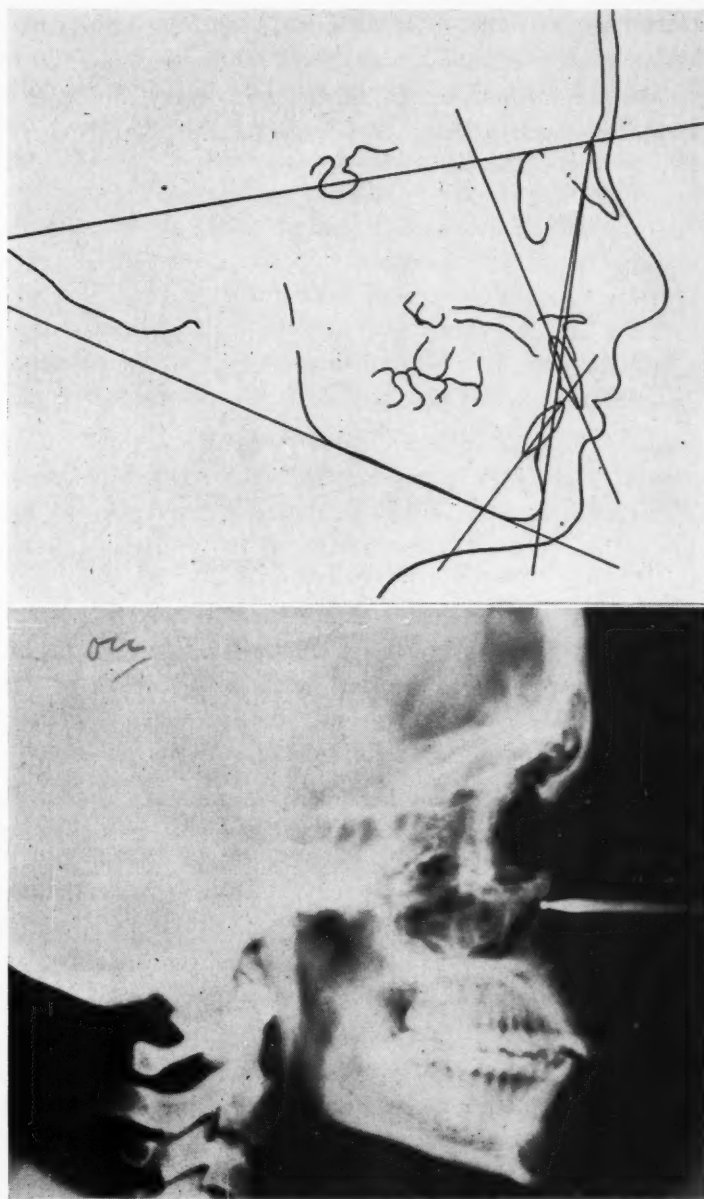


Fig. 15.—Patient J. H. Cephalometric radiograph and tracing in acquired terminal occlusion.

comparative quantitative study of the angular and linear measurements made on tracings of cephalometric radiographs (Figs. 14, 15, and 16) taken in approximate centric occlusion and acquired terminal occlusion, as well as a composite tracing.

The quantitative difference of  $+1.5$  degrees in the SNB and SNP angular relationships from approximate centric to acquired terminal occlusion, respectively, is the difference between a normal occlusal inclined plane relationship of the teeth and one that tends toward an Angle Class II occlusal inclined plane relationship of the teeth and the concomitant characteristics mentioned above. Repositioning the mandible anteriorly and superiorly to this degree in this particular case corrected an occlusal inclined plane relationship that required en masse distal movement of the maxillary denture one-half the width of a premolar on each side. This patient did not return for treatment by me.

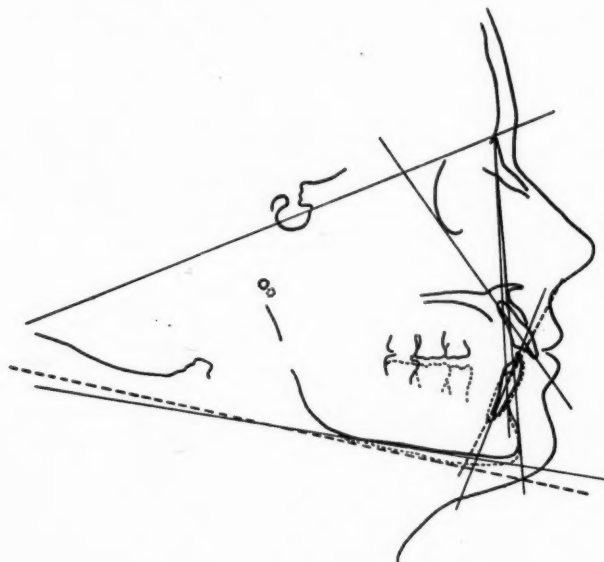


Fig. 16.—Patient J. H. Composite tracing.

Cephalometrically, the difference in angular measurements may not be significant in a statistical sense in these two cases. Nevertheless, clinically, they illustrate a skeletal rearrangement in conflict with the patients' unique neuromuscular pattern by the anterior and superior repositioning of the mandible. Although this is a violation of the patient's orthodontic individuality and contraindicated treatment of Angle Class I malocclusion with mesially or anteriorly migrated maxillary dentures, there was created a terminal occlusion that, for all intents and purposes, seemingly was esthetically and functionally acceptable; however, because it was not in balance and harmony with the patient's individual, distinct, and unique morphologic and neuromuscular pattern, the end results were uncomfortable, unstable, and not conducive to denture longevity.

#### SUMMARY AND CONCLUSION

The success of orthodontic treatment in many instances is often dependent on the ability of the orthodontist to recognize clinically significant orthodontic



differences: the variability and individuality at the morphologic and physiologic levels. The critical individual needs of a malocclusion can be cared for only if they are recognized.

Although changes are constantly taking place in the course of growth, development, use, and aging, the dental and skeletal patterns are distinct, unique, and characteristic and may be considered relatively constant for each person. The maxillomandibular skeletal, dental, and neuromuscular relationship in physiologic rest and the mandibular path into centric relation, centric occlusion, and functional occlusion are also distinctive and characteristic for each individual; hence, relatively speaking, they may also be considered constant for that individual. The relative constancy may be observed in the examination of a bite plate with a flat incisal plane after it has been in constant use without dental interference. The markings of the incisal edges of the lower incisors can be readily seen to follow a definite pattern.

In order to attain the optimum in treatment, many of the factors discussed in this article must be taken into consideration, so that the end result for the chronological, physiologic, and dental ages may be as follows:

(1) A regularly aligned dentition that is within the anatomic, morphologic, and physiologic limitations of the size and shape of the teeth and the supporting mandible and the maxilla, as well as in environmental balance with the adjacent musculature of the tongue and face.

(2) An articulated dentition so related to the temporomandibular joint and muscles of mastication that physiologic rest and the mandibular path into centric relation, centric occlusion, and functional occlusion are in harmonious adjustment. These objectives may at times require the reduction of some dental units.

It is not possible to take away from any occlusion, malocclusion, or dento-facial deformity either its heredity or its environment. Many of the environmental influences come from the surrounding and associated tissues and from neuromuscular forces. What happens to these environmental influences, however, depends on the hereditary pattern of growth of the musculature, the jaws, and the dentition upon which these environmental factors bear. On the other hand, the genetic potentialities could never attain their optimum without adequate means by which to grow and develop. The genetic patterns of growth and development of the jaws and the teeth may differ in the individual within the limits compatible with existence. Hence, the problem resolves itself into the fact that, though the environmental influences may be influenced to some degree and the hereditary characteristics not at all, the malocclusion may often be corrected and an articulated dentition may be established in balance with the orthodontic individuality of the anatomic, morphologic, and physiologic limitations at the chronological, physical, and dental ages at the time of treatment. When this has been accomplished, the basic foundation is laid for the attainable optimum in esthetics, function, and denture longevity.

Two illustrative cases from my practice are cited.

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255 S. 17TH ST.

## Editorials

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### VERY IMPORTANT

**I**F YOU are like many professional men in the United States, in checking your important papers you would probably find an insurance portfolio. In this portfolio you would no doubt find policies covering health, life, accident, sickness, automobile comprehensive, and others ad infinitum. You would, however, find no policy or fixed plan designed to carry on the uninterrupted treatment of your unfinished cases in the event of your death or complete disability.

Little has been written about this subject, but times are now changing rapidly and the matter is up for careful examination. Dentists (particularly orthodontists) will no doubt be interested in carefully reading a report entitled "Is Your House in Order?" which appeared in the January, 1960, issue of the *AMERICAN JOURNAL OF ORTHODONTICS*. This report was especially prepared by the Necrology Committee of the American Association of Orthodontists at the urgent request of President George Anderson.

Recent bitter experiences have proved beyond any shadow of a doubt that this subject is very important and that an alert beamed to orthodontic specialists is again in order.

First, to recall something of the background leading up to the great urgency of this situation, we cite an article by Dr. Harry Cimring of Beverly Hills, California, and an editorial by Dr. C. F. Stenson Dillon of Hollywood, California. In an editorial published in the December, 1953, issue of the *AMERICAN JOURNAL OF ORTHODONTICS*, Dr. Dillon pointed out some of the important "house-in-order" problems experienced by the California committee that was the first to sound the alert on this subject. Dr. Cimring, in an article published in the November, 1959, issue of *CAL* magazine, succinctly presented the situation as follows:

A special case is that of the orthodontist who dies leaving many unfinished cases. As a result, his estate becomes exposed to law suits by parents of patients under treatment. Often the orthodontist has been paid in advance for work not yet completed.

Regarding this latter and special case, we would like to refer to an editorial which appeared a few years back in *The Journal of the American Association of Orthodontists*.<sup>\*</sup> It was written by Dr. C. F. Stenson Dillon of Hollywood, California.

Dr. Dillon points out that the orthodontist (or the dentist) spends a lifetime rendering competent service to his patients and living graciously, but neglecting to provide adequately for his family's future. Dr. Dillon refers less to the matter of savings, insurance, and investments than he does to the problem of putting one's house in order—financially and record-wise—and keeping it that way.

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<sup>\*</sup>Dillon, C. F. S.: Protect Yourself and Your Interests, *AM. J. ORTHODONTICS* 39:952, 1953.

During his term of office as president of the Pacific Coast Society of Orthodontists, Dr. Dillon was subjected to more member-deaths than is usually expected. In trying to aid in solving the many problems attendant thereto, he gained an insight into how these things should be handled and what precautions should be taken.

In his effort to aid the widows and/or survivors, he found many instances in which wills, bank accounts, tax records, life insurance policies, malpractice policies, patient records, and safe deposit box numbers or keys were unrecorded or inaccessible. He found many cases of prolonged probates and of lawsuits, and cases wherein the safe deposit boxes, bank accounts, and office records were sealed by government agencies for varying periods of time. These and other equally disconcerting circumstances (all of which might have been prevented) caused grief, worry, inconvenience, expense, and loss in the amount of the estate. In some cases the survivors suffered unnecessarily prolonged temporary periods of want.

To help avoid this chaotic situation Dr. Dillon approached the board of directors of the American Association of Orthodontists. The board, in turn, directed a committee under Dr. George Herbert to prepare a booklet—which if filled out promptly, completely, and carefully, and placed in a safe place (other than the doctor's office or safe deposit box)—could provide much protection for his survivors on many levels. This booklet was sent to all members of the Association.

The problem of the continuation of unfinished cases in the event of disability of the physician or general dentist is not nearly so great as that which arises when an orthodontist dies or becomes totally disabled. In orthodontics the replacement problem is difficult unless plans have been made far in advance. Bitter experiences have proved that the problem should not be ignored.

One way of coping with this hazard—and this is undoubtedly the most direct way—is the association of two or more men in the same office. Another is an understanding between two or more men of kindred concepts located in the same area. In the opinion of those who have had close-up experience with this problem, nothing at the present time is as important for the protection of patients and of the doctor's family and for public relations of orthodontics as a plan for the smooth distribution of unfinished orthodontic cases that are under treatment at the time of the orthodontist's death or disability.

We urge you to read "Is Your House in Order?" compiled by the Necrology Committee, which is made up of the following men: William S. Smith, San Francisco, California (chairman); John A. Atkinson, Louisville, Kentucky; Milton Asbell, Camden, New Jersey; Curtis L. Benight, Denver, Colorado; Arlo M. Dunn, Omaha, Nebraska; Nelson E. Seibel, Syracuse, New York; George R. Webber, Enid, Oklahoma; and Angus F. White, New Haven, Connecticut.

One thing is certain: Nowhere do we find a better example of the old truism that to be forewarned is to be forearmed.

H. C. P.

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#### CONTINUING EDUCATION IN ORTHODONTICS

SOME orthodontists "retire" long before they stop practicing. They reach a point in their professional careers where they feel that there is "nothing new under the sun" and that they have nothing more to learn. Anyone who



reaches this stage has mentally retired, even if he still goes through the motions of treating patients. Fortunately for orthodontists, such practitioners are extremely few.

It is taken for granted that practitioners of any specialty are so intensely interested in their special area of concern that they look forward to and take advantage of every opportunity to keep abreast of newer developments in their specialty. In a recent editorial\* we pointed out that the completion of post-graduate education for a specialty can, at most, provide only "the initial plateau" for additional education.

The question that everyone practicing orthodontics should ask himself is: "Am I able to continue to add to my orthodontic knowledge, or have I reached a point where I should retire not only mentally but also dentally?"

When speaking of their professional societies, many are likely to refer to society activities in terms of "they," little realizing that "they" includes everyone who pays dues to the organization.

In the January, 1960, issue of the *AMERICAN JOURNAL OF ORTHODONTICS*, Dr. George M. Anderson, president of the American Association of Orthodontists, presented an account of the scientific and organizational activities scheduled for the A. A. O. meeting to be held April 24 to 28, 1960, at the Shoreham Hotel in Washington, D. C.

The outstanding scientific program, in which authorities from foreign countries and the United States will participate, includes such essayists as Adams of Ireland, Lundström of Sweden, Reitan of Norway, De Castro of Brazil, Begg of Australia, and Tweed, Martinek, and Oliver of the United States. Ricketts will present a condensation of his A. B. O. thesis. Such clinicians as Scott of Ireland, Ballard of England, Korkhaus of Germany, Hotz of Switzerland, Lager of Denmark, Kjellgren of Sweden, Maj of Italy, Dockrell of Ireland, Hovell of England, Harvold of Canada, and others from the United States will participate.

There will be many questions of vital interest to orthodontists and orthodontics. Included among these are the efforts of the Council on Dental Education to regulate specialties; the qualification of preceptorship-trained orthodontists; the activities of the Public Health Committee of the Association in public health and prepaid orthodontic plans, which are growing in number; the transference of orthodontic patients; and problems of similar importance.

The city of Washington itself needs no special pleading as a place of interest worth visiting over and over again. The social aspects of the meeting will be found to be not only interesting and entertaining but also educational.

Those who have not as yet made arrangements to attend the meeting still have time to plan to attend. It is better to be there than to be sorry later.

*J. A. S.*

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\*Editorial: Specialization and Specialty Boards in Dentistry, *AM. J. ORTHODONTICS* 45: 861-865, 1959.

## Department of Orthodontic Abstracts and Reviews

Edited by

DR. J. A. SALZMANN, NEW YORK CITY

All communications concerning further information about abstracted material and the acceptance of articles or books for consideration in this department should be addressed to Dr. J. A. Salzmnn, 654 Madison Avenue, New York City.

**Cephalometric Identification:** By Viken Sassouni, University of Pennsylvania, Philadelphia, Pennsylvania.

This study was conducted at the Philadelphia Center for Research in Child Growth.\*

1. Four hundred ninety-eight males were x-rayed twice with the Broadbent-Bolton roentgenographic cephalometer; the first set represents the antemortem films (AM) and the second set the postmortem films (PM). Two hundred forty-eight were x-rayed in Philadelphia; seventy at the Bolton Fund Headquarters, Western Reserve University; 120 at the University of Illinois; and 110 at the National Institutes of Health. They represent grossly a cross section of young American men.

2. For various reasons, but basically in order to obtain the greatest variability for the minimum error and at the same time to avoid tracings, the use of linear dimensions was selected as the method of measurement.

3. Twenty-four measurements were selected on the posteroanterior film. Large error, low variations, and duplications eliminated sixteen of them. The eight selected measurements are frontal sinus breadth, facial height, bigonial, cranial height (mastoid apex), incision height, bizygomatic, bimaxillary, and maximum cranial breadth.

4. Twenty-four measurements were selected on the lateral film. By a similar process, as for the posteroanterior film, sixteen measurements were eliminated. The eight selected measurements are height of the cranium 8 cm. posterior, 4 cm. posterior, just above, and 4 cm. anterior to the center of sella turcica; facial height (Na-Me); cranial length along nasion-sella, 4 cm. above, and 8 cm. above.

5. A table of correlation was computed among the sixteen selected measurements (eight posteroanterior, eight lateral). From these sixteen, the five best measurements (in terms of high variability, low error, and low correlation) were selected by individual simultaneous computation. These five measurements are length of cranium 4 cm. above Na-S, sinus breadth, total facial height, and bigonial and bizygomatic breadths. They are the most characteristic of an adult male.

6. Since four of the five selected measurements are from the frontal film, and in order to realize a 50 per cent economy, an attempt was made to use only the posteroanterior film for purposes of identification.

\*The research upon which this study is based was supported by Contract #DA-19-129-QM-739, Mod. #1, Quartermaster Research and Development Command, United States Army.

7. A test was made to identify 100 postmortem films from 498 antemortem films. A special routine was written to permit the location and the neutralization of accidental errors. The test was conducted on a Univac machine. It took ten seconds for the Univac machine to locate the correct film out of 498 possibilities. Direct identification was made on 97 per cent; 3 per cent could be identified by direct comparison with the remaining films. It can be stated, therefore, that the test of identification was 100 per cent successful.

8. Suggestions were made which, if adopted, may lead to increasing the standardization of the entire process, decreasing the errors, creating a mobile roentgenographic unit, and initiating a longitudinal study of the growth of head and face in adults.

9. In conclusion, identification can be realized with 100 per cent accuracy. At the same time, the roentgenographic films gathered will constitute for medical and dental health units an invaluable source of information on one of the most vital areas of the human body.

*Contribution to the General Field of Cephalometry.*—The method tested in this study may be applied in researches concerning the choice of the most reliable and the most significant landmarks, planes, angular or linear dimensions, or proportions. This will lead to the selection of a minimum number of measurements representative of the dentofacial complex. This set of values may, in turn, be used for cephalometric analyses and growth and treatment progress studies.

262 SOUTH 54TH ST.  
PHILADELPHIA, PA.

**Integration of Certain Variants as a Determinant of Facial Morphology in Class III Malocclusion (Angle):** By Lamar Stone Timmons, University of Illinois, Chicago, Illinois.

A report is made of a study conducted on 165 persons with Class III malocclusion of the teeth. The age range was from 5 to 46 years, with a mean age of 16 years. The method was cephalometric roentgenography, and the Coben analysis was used to compare the films of the Class III malocclusion sample with those of the Coben Class I occlusion sample. The coordinate method of analysis as used by Coben permitted the appraisal of various craniofacial structures as to (a) the relative proportion contributed by each variant to the morphologic pattern of the face and (b) the measure of the effective length of the variants in contrast to their absolute dimensions.

Since Coben had studied his sample at both the 8- and 16-year level for the purpose of noting age changes, a subsample of Class III persons with a mean age of 8 years was used for comparison with his 8-year findings. Significance of differences between the two samples was evaluated by the "t" test of significance of unpaired experiments. The confidence limit of the mean (99 per cent certainty) was used to determine whether each variant was above, within the range of, or below the respective mean of the Coben sample.

The findings indicated that the mean values of the segments contributing to the effective depth of the maxilla in the Class III malocclusion sample were slightly smaller as compared to those of the Coben Class I sample at both the 8- and 16-year levels. Middle face prognathism of the Class III sample exhibited a tendency to become proportionally smaller with age.

Mean values of all segments that contributed to the depth of the mandible were found to be greater in the Class III malocclusion sample when compared

to the Coben Class I sample at both the 8- and 16-year levels. Lower face prognathism of the Class III sample exhibited a tendency to become proportionally greater with age.

The vertical dimension of the anterior face was definitely greater in the Class III malocclusion sample as compared to the Coben control sample. Examination of the variants showed a trend toward a smaller respiratory area, integrated in most cases with greater values of the lower part of the anterior face. An open-bite contributed to a consistently greater anterior face height. Posterior face heights tended to be slightly shorter and exhibited a relatively high positioning of the glenoid fossa. This effect was offset in part by the greater effective height of the ascending ramus.

The mean values of the gonial, ramus inclination, and mandibular plane angles were found to be more obtuse, while the cranial base angle was more acute in the majority of persons of the Class III malocclusion sample at both age levels.

Although the study of the Class III sample resulted in the delineation of a pattern of the head that differed little from that previously described, attention to individuals indicated that the ultimate pattern is determined by the integration of an almost infinite number of variants.

**Environmental Influence on Mandibular Morphogenesis:** By Egil Harvold, Faculty of Dentistry, Orthodontic Department, University of Toronto, Toronto, Ontario, Canada.

Studies of maturation of the mandible in children free from any extreme craniofacial defect serve to emphasize the marked stability of the gonial angle. Moreover, current knowledge of mandibular morphology in cleft palate cases reveals that this bone differs in certain basic characteristics in this group as compared with unaffected children. In affected children, not only is the gonial angle more obtuse, the inferior border of the mandible being steeply inclined, but also pogonion is retruded.

This report is of a study based on measurements of the gonial angle taken from the oblique cephalometric radiograms of two samples of children. The samples included normal children, five groups of random children aged 3, 6, and 12 years of age, and seventy cleft palate children between the ages of 5 and 17 years of age. The children making up the affected group had been subjected to corrective surgery before 2 years of age, and they had also received orthodontic treatment for a period of three years at some time in their lives. Since records were taken both before and after orthodontic treatment, it was possible to compare the affected cases in the treated and untreated conditions, with normal children of similar age. Comparisons of angles were thus made between the untreated affected, the treated affected, and the normal children at 6 and 12 years of age. The results obtained showed the following: in the normal children, the gonial angle became more acute between the ages of 3 and 12 years of age; in the orthodontically untreated cases the angle became more obtuse as age increased; in the orthodontically treated cases the angle followed the pattern of the normal children and decreased in size with age. A significant difference was found to exist between the changes in the treated and the untreated children. Two factors in mandibular morphogenesis thus become clear: first, the gonial angle does not remain unchanged between the ages of 3 and 12 years of age; second, corrective environmental orthodontic therapy applied to the maxilla brings about significant changes in the form of the mandible.



**A Comparison of Mandibular Body Length in Normal Occlusion, Class I Malocclusion and Class II Malocclusion in the 12-Year-Old Group:** By Clarence Edgar Calcote, School of Dentistry, University of North Carolina, Chapel Hill, North Carolina.

This study was undertaken to determine whether there is any significant difference between the mandibular lengths of patients with normal occlusion, Class I malocclusion, or Class II malocclusion. Ninety 12-year-old patients were selected at random to place thirty subjects in each class of occlusion, half male and half female. A standardized measurement was made on a tracing of the cephalogram of each subject. A statistical analysis was conducted and from this came the following conclusions:

1. There was considerable range in the total group and also within groups.
2. There was proved to be no significant difference in mandibular length due to sex differences or due to differences in class of occlusion.
3. There was proved to be no significant interaction between sex and class of occlusion with respect to their effect on mandibular length.

159 WENTWORTH ST.  
CHARLESTON, S. C.

**A Study of the Correlations of Some Vertical Facial Components to Total Facial Height in Adult Males Possessing Excellent Dental Occlusion:** By Maurice Al Brown, University of Tennessee, College of Dentistry, Memphis, Tennessee.

A study was made of twenty-two white men with superior to excellent occlusions in which there existed a Class I molar and cuspid relationship, with minimum overbite and overjet and very minor rotations of individual teeth. No permanent teeth were missing, and spacing was very minimal. None had ever been treated orthodontically.

It was thought that if in superior to excellent occlusions it could be shown that there was a high correlation and constancy of position between certain component structures and total facial height, then the knowledge of the vertical level of these structures would offer aid to the orthodontist in determining what vertical level he should strive for when treating cases of malocclusion.

Cephalometric roentgenograms were taken of each subject, with the mandible and teeth in centric occlusal relationship.

Perpendiculars to the facial plane were drawn passing through nasion, anterior nasal spine, incisal edge of the upper and lower central incisors, level of the upper lip, and gnathion. Linear measurements were then made of the distances between the perpendiculars, and each value was converted to a percentage of total facial height. Correlation was then sought between the ratios  $\frac{N-ANS}{N-Gn}$  and  $\frac{N-I}{N-Gn}$ ;  $\frac{N-ANS}{N-Gn}$  and  $\frac{N-UL}{N-Gn}$ ; and  $\frac{N-ANS}{N-Gn}$  and  $\frac{N-\bar{I}}{N-Gn}$ . High correlation was found to exist between these ratios and by use of the "t" test for significance it was found that the correlation coefficients differed significantly from zero.

It was concluded that there is a definite correlation between ratios of total facial height and certain component parts of the total facial height.

4428 N. BLVD.  
BATON ROUGE, LA.

## News and Notes

### American Association of Orthodontists

The fifty-sixth annual session of the American Association of Orthodontists will be held April 24 to 28, 1960, at the Shoreham Hotel in Washington, D. C.

Arrangements are proceeding quite satisfactorily for this first annual session of the new decade. Your officers are making every effort to see that your time will be well spent.

The scientific program is outstanding. Great care has been taken to select essayists, clinicians, and discussion leaders from here and abroad. Their presentations should be instructive, provocative, and even inspirational. The essay, registered clinic, general clinic, research, and round-table programs are being arranged so as to give you a rare opportunity to share and discuss mutual problems with the world's leading orthodontists.

Because beautiful Washington is the host city, the sightseeing and social activities are unusually attractive. There will be a conducted tour of the city on Sunday afternoon and a trip to Mount Vernon, Alexandria, and Christ Church on Monday. The ladies will have a specially arranged style show and luncheon on Tuesday, and there will be continental breakfasts on both Monday and Tuesday. We all will enjoy the Sunday night reception honoring our guests from abroad and the candlelight buffet that follows, as well as the President's reception and dinner-dance on Wednesday night.

Hotel facilities are excellent. In addition to the Shoreham, arrangements have been made with the Sheraton-Park Hotel and other hotels that are quite close. Because of the unprecedented demand for rooms, it would be wise to make your reservations immediately.

In keeping with the importance of the meeting, because of the expected large attendance, and in order to help you gain the most possible from each contribution, closed-circuit television will augment the usual meeting facilities.

For a profitable, educational, and socially delightful experience, complete your plans now for Washington in '60!

### *Program Outline*

*Monday, April 25*

OPENING OF THE SESSION (Terrace Room and West Ballroom)

- 9 A.M.                      Official Opening of the Meeting. President George M. Anderson.  
Invocation. The Rev. Dr. Graham Gordon Lacy, Minister, Central Presbyterian Church, Washington, D. C.  
Official Greetings to Guests From Abroad. Hon. Francis O. Wilcox, Assistant Secretary of State.  
Greetings, American Dental Association. C. Willard Camalier, Director, Washington Office.  
Address of Welcome. Hon. Robert E. McLaughlin, President, Board of Commissioners, District of Columbia.  
Response. William R. Humphrey, President-Elect, American Association of Orthodontists.  
President's Address. George M. Anderson.

SCIENTIFIC MEETING (Terrace Banquet Room and West Ballroom)

- Honorary Presiding Officer:* Hugo Thorne, President, Swedish Orthodontic Society.  
*Presiding Chairman:* T. M. Graber, General Chairman, 1960 Session.
- 10 A.M.                      The John V. Mershon Memorial Lecture.  
Introduction by John W. Ross.  
PROFESSIONAL AND PUBLIC RELATIONS. C. Edward Martinek (U. S. A.)
- 11 A.M.                      ASYMMETRIES OF THE TEETH, DENTAL ARCHES, JAWS, AND SKULL AND THEIR ETIOLOGICAL SIGNIFICANCE. Anders Lundström (Sweden).

- 12:15 P.M. Golden Anniversary Luncheon (Charles R. Baker presiding). Blue Room.  
Guest speaker: Sheldon Friel (Ireland).
- 2:15 P.M. Albert H. Ketcham Memorial Awards.  
Presentation by L. Bodine Higley, President, American Board of  
Orthodontics.  
*Recipients:* Sheldon Friel, Dublin, Ireland, and Charles H. Tweed,  
Tucson, Arizona.
- SCIENTIFIC MEETING (Terrace Banquet Room and West Ballroom)  
*Honorary Presiding Officer:* Olav Slagsvold, President, Norwegian Or-  
thodontic Society.  
*Presiding Chairman:* Paul V. Reid, Program Chairman.
- 3:15 P.M. RELEGATING TO APPLIANCES THEIR PROPER PLACE IN TREATMENT. Oren  
A. Oliver (U. S. A.).
- 4:15 P.M. TISSUE BEHAVIOR DURING ORTHODONTIC TOOTH MOVEMENT. Kaare Reitan  
(Norway).



Cherry trees blooming along Tidal Basin in Washington, D. C., where the A. A. O. will meet April 24 to 28, 1960. The Washington Monument is in background at right.

*Tuesday, April 26*

- SCIENTIFIC MEETING (Terrace Banquet Room and West Ballroom)  
*Honorary Presiding Officer:* H. T. A. McKeag, President, European  
Orthodontic Society.  
*Presiding Chairman:* A. Frank Heimlich, Vice-President, American As-  
sociation of Orthodontists.
- 9 A.M. ORTHODONTIC DOCTRINE AND MECHANICAL TREATMENT METHODS. C.  
Philip Adams (Ireland).

- 10 A.M. THE IMPORTANCE OF AN ACCURATE ANALYSIS IN ORTHODONTIC DIAGNOSIS AND TREATMENT PROCEDURES. Charles H. Tweed (U. S. A.).
- 11:30 A.M. First Business Meeting. Terrace Room.
- 12:15 P.M. Ladies' Luncheon and Style Show. Blue Room.
- 12:15 P.M. Past Presidents' Luncheon. Tamerlane Room.
- 1:30 P.M. RESEARCH SECTION, AMERICAN ASSOCIATION OF ORTHODONTISTS.  
*Honorary Presiding Officer:* Francis A. Arnold, Jr., Chief, National Institute of Dental Research, Department of Health, Education and Welfare.  
*Presiding Chairman:* Herbert I. Margolis, Chairman, Research Committee, American Association of Orthodontists.
- 1:30 P.M. Milo Hellman Research Award. Prize-Winning Essay.
- 2:15 P.M. Report of the Second Cephalometric Workshop. J. A. Salzmann, Chairman, Second Cephalometric Workshop Committee (U. S. A.).
- 3 P.M. Condensed Research Reports. (Ten-minute illustrated reports on current or recently completed research projects in orthodontics and associated fields. In addition to the usual fine reports by men in this country, there will be a number of contributions by our eminent guests from abroad—Karl Häupl, Germany; A. Martin Schwarz, Austria; Hugo Thörne, Sweden; R. B. Dockrell, Ireland; etc.)

*Wednesday, April 27*

## SCIENTIFIC MEETING (Terrace Room, West Ballroom, and Bird Cage Walk)

*Presiding Chairman:* Nathan G. Gaston, Chairman, General Clinics Committee.

- 9 to 11:30 A.M. GENERAL CLINICS.
- "Orthodontics at St. Louis University." St. Louis University, St. Louis, Missouri (John Cross, Theron Dikeman, Thomas Holden, Guillermo Mazzei, James Morrow, John Watkins, and K. C. Marshall, Director).
- "The Community Orthodontic Clinic at St. Joseph's Hospital." Mason E. Seibel, Syracuse, New York.
- "Early Treatment." L. W. Robinson, Youngstown, Ohio.
- "Full Appliances in One Visit." John M. Jackson, Ardmore, Pennsylvania.
- "Practice Administration." Herbert Paskow, Elizabeth, New Jersey.
- "New Techniques in Orthodontics With the Use of Combination Loops." G. J. Broussard, Beaumont, Texas.
- "The Spencer Atkinson Lingual Arch in Crossbite Cases." S. H. Yoffe, Harrisburg, Pennsylvania.
- "Facial Photographs With a Polaroid Camera." B. F. Swain, Morristown, New Jersey.
- "Class I or Pseudo Class III." E. O. Rosenast, Camden, New Jersey.
- "Practice Management and Office Efficiency." Neal M. Roth, Jacksonville, Florida.
- "Early Treatment Theory and Therapy. A Review of Ten Years of Treatment of Various Malocclusions With Appliances Specifically Developed for Use in Early Treatment." Abraham I. Fingerroth and M. M. Fingerroth, New Rochelle, New York.
- "The Diamond Spring Arch." Jack Perlow, Flushing, New York.
- "An Appliance Used in Treating Open Bite Cases." J. H. O'Hern, Philadelphia, Pennsylvania.
- "Research on Headcap Treatment." Roger X. O'Meyer, Paris, France.
- "Automatic Hawley." William E. Silver, Boston, Massachusetts.
- "Direct Construction of Twin Wire Appliances in Sixty Minutes." Brooks Juett, Lexington, Kentucky.
- "Adjuncts to Orthodontics." Albert Signorella, New Bedford, Massachusetts.



- "Let Us Look at Habits and Their Control; Objective Motivation Suggestions." David J. Thompson, Elmhurst, Illinois.
- "The Uses and Abuses of the Biteplate." T. L. Jerrold, Hempstead, Long Island, New York.
- "Lip, Tongue and Thumb Habit Breakers." "Cuspid Retractors." "Make It Yourself Display Models." Max R. Kadesky, Dubuque, Iowa.
- "The Importance of the Early Recognition of Missing Bicuspids With Some Treatment Ideas." Robert Gawley, Alhambra, California.
- "Distal Movement of Molar Teeth With a Removable Appliance." Arthur Bell, Catonsville, Maryland.
- "Variations of the Edgewise Mechano-Therapy." Solomon J. Kessler, Newark, New Jersey.
- "Dynamic Functional Therapy." Harry W. Tepper, Los Angeles, California.
- "Results of Orthodontic Treatment Five to Twenty-Five Years After." Abraham Lees, New York, New York.
- "Distal Movement of Canines." Herman Livingstone, Dorchester Centre, Massachusetts.
- "Some Factors in Orthodontic Relapses." Arthur L. Fern, Hartford, Connecticut.
- "The Universal Appliance at Work." J. Clifford Willeox, Pasadena, California.
- "Time Analysis in Orthodontic Practice." J. P. Garvey, Albany, New York.
- "Use of the Gurin Lock in Labial, Twin Wire, Extra-Oral, and Edgewise Techniques." L. R. Gurin, Mount Kisco, New York.
- "The Application of Electro-Surgery in an Orthodontic Practice." R. W. Galen, Cambridge, Massachusetts.
- "Increasing the Area of the 'Milling Table,' as an Aid in Establishing New Neuro-Muscular Habit Patterns." George Orr, Jr., Lynchburg, Virginia.
- "Stabilizing Plates for Anchorage." Bruce W. Higley, South Miami, Florida.
- "Supernumerary and Congenitally Missing Teeth and Their Problems." Frank P. Gilley, Bangor, Maine.
- "Aids in Retention." C. Paul Bonin, Boston, Massachusetts.
- "Orthodontic and Prosthetic Management of the Cleft Palate Patient." Joseph Luban and Sebastian Bruno, Bronxville, New York.
- "The Improved Edgewise Non-Tie Bracket; Its Use and Function." Louis J. Williams, Casper, Wyoming.
- "Modified Indirect Technique Using Wax Collars." Walter J. Sly, Boston, Massachusetts.
- "Universal Appliance and Some of Its Variations." Thorwald Eros, Jr., Atlanta, Georgia.
- "Results of Treatment Obtained by Functional Orthopaedics of the Jaw." Karl Häupl, Düsseldorf, Germany.
- "Active Removable Plates and Functional Appliances." Oscar Hoffer, Milan, Italy.
- "A Demonstration of the Begg Technique." A Begg Study Group (Sidney Brandt, Morristown, New Jersey; Howard Diamond, New Brunswick, New Jersey; Willis Sage, Plainfield, New Jersey).
- "Some Aspects of Permanent First Molar Removals." Sylvester J. Hecht, Red Bank, New Jersey.
- "Extra-Oral Therapy." Robert L. DeShong, Oil City, Pennsylvania.

- "Orthodontic Case Histories—A Synthesis of Factors in Diagnosis." Leonard Schlossberg, Bethesda, Maryland.
- "Results of Removable Appliances." A. Martin Schwarz, Vienna, Austria.
- "Orthodontic Management of the Cleft Palate Patient." John A. Cooper and Ross B. Long, Lancaster, Pennsylvania.
- "A Simple Method of Producing Black and White Prints From 35 mm. Kodachrome Transparencies." Howard W. Peterson, Steubenville, Ohio.
- "Analysis of Treated Orthodontic Cases." "Functional Jaw Orthopedics." William Grossman, London, England.
- "Mixed Dentition Treatment for the Child With Cleft Palate." Lennard T. Swanson, Boston, Massachusetts.
- "Variations of the Differential Light Force (Begg, Story, Smith) Technique According to Tweed Treatment Principles." Loyola University of Chicago, Orthodontic Department (Joseph R. Jarabak, Chairman, Staff and Graduate Students).

## 12 M. ROUND-TABLE DISCUSSION LUNCHEON (Blue Room and Palladian Room)

*Presiding Chairman:* B. Edwin Erikson, Vice-Chairman, 1960 Session.*Table**Discussion Leader and Subject*

- No.*
1. A. Leon Ackerman, Westfield, New Jersey: Extra-Oral Anchorage.
  2. C. P. Adams, Belfast, Northern Ireland: Aims of Orthodontic Teaching.
  3. Philip E. Adams, Boston, Massachusetts: Labio-Lingual Applications and Variations.
  4. Ernest N. Bach, Toledo, Ohio: Distoclusion and Infradclusion.
  5. Walter R. Bedell, Poughkeepsie, New York: Gimmicks.
  6. Henry C. Beebe, Boston, Massachusetts: Referred Orthodontic Cases.
  7. P. Raymond Begg, Adelaide, South Australia: Optimal Orthodontic Forces.
  8. E. Allen Bishop, Seattle, Washington: Bi-Maxillary Extractions in Class II.
  9. Francis M. Calmes and Victor D. Bowles, Kansas City, Missouri: The Multiphase Philosophy and Technique.
  10. Edward A. Cheney, Lansing, Michigan: Dentofacial Asymmetries.
  11. Herbert K. Cooper, Lancaster, Pennsylvania: Oral-Facial and Speech Defects.
  12. Newton de Castro, Rio de Janeiro, Brazil: New Trends in Orthodontics.
  13. Gerard A. Devlin, Westfield, New Jersey: Vertical Relationship of Teeth and Dental Arches.
  14. B. F. Dewel, Evanston, Illinois: Mixed-Dentition Treatment.
  15. R. B. Dockrell, Dublin, Ireland: Specialist Orthodontic Training.
  16. William B. Downs, Aurora, Illinois: Evaluation of the Patient's Profile.
  17. Walter M. Dunlap, East Orange, New Jersey: Professional Ethics.
  18. M. D. Edwards, Montgomery, Alabama: The Transfer Patient.
  19. Meyer Eggnatz, Miami Beach, Florida: Patient Cooperation—Key to Success?
  20. Leigh C. Fairbank, Washington, D. C.: Orthodontic Payroll—Its Tax Problems.
  21. Samuel Fastlicht, Mexico, D. F.: Open-Bite Problems.
  22. G. Vernon Fisk, Toronto, Canada: Post-Treatment Relapse.
  23. Robert James Gawley, Alhambra, California: Deciduous Molars Without Successors.
  24. Clifford G. Glaser, Buffalo, New York: Training Functional Habits.
  25. E. P. Harvold, Toronto, Canada: Arch Retention in Cleft Palate.
  26. Robert B. Hedges, Jenkintown, Pennsylvania: Growth and Early Treatment.
  27. L. B. Higley, Chapel Hill, North Carolina: Anchorage.
  28. E. H. Hixon, Iowa City, Iowa: Size of Unerupted Cuspids and Bicuspid.
  29. Scott T. Holmes, Muskegon, Michigan: Analytical Study of Diagnosis.
  30. R. Hotz, Zurich, Switzerland: Class II, Div. 1 Treatment: Mandibular or Alveolar Response?
  31. John H. Hovell, London, England: Malocclusion and T-M Joint Dysfunction.
  32. Andrew Francis Jackson, Philadelphia, Pennsylvania: Basic Principles of Orthodontic Treatment.

33. John Mather Jackson, Ardmore, Pennsylvania: Modification of the Labio-Lingual Technique.
34. Charles S. Jonas, Atlantic City, New Jersey: The Lower Lingual Appliance.
35. Earl G. Jones, Columbus, Ohio: Orthodontic Treatment According to Age.
36. Solomon J. Kessler, Newark, New Jersey: Combining the Edgewise and Begg Techniques.
37. Birger Kjellgren, Stockholm, Sweden: Class III Malocclusion Treatment.
38. Gustav Korkhaus, Bonn, Germany: Can the Skeletal Pattern Be Changed?
39. William Kress, Baltimore, Maryland: Begg Light-Wire Technique.
40. S. James Krygier, Wilmington, Delaware: Begg Technique.
41. Hugo Lager, Copenhagen, Denmark: Tissue Reaction Due to Orthodontic Treatment.
42. Frank F. Lamons, Atlanta, Georgia: The Use of Crozat Removable Appliances.
43. John T. Lindquist, Indianapolis, Indiana: Indirect Appliance Construction.
44. Leo B. Lundergan, St. Louis, Missouri: Habits Affecting Occlusion.
45. Anders Lundström, Stockholm, Sweden: Indications and Contraindications for Orthodontic Treatment.
46. E. C. Lundsford, Miami, Florida: Transfer Patients.
47. Herbert I. Margolis, Boston, Massachusetts: Differential Diagnosis.
48. C. Edward Martinek, Detroit, Michigan: The Extraction Problem.
49. Dallas R. McCauley, Beverly Hills, California: Effects of Physiologic Forces on Orthodontic Therapy.
50. Hunter Irving Miller, Flint, Michigan: Saving and Investment Programs.
51. Alton W. Moore, Seattle, Washington: Extra-Oral Anchorage.
52. C. F. A. Moorrees, Boston, Massachusetts: Growth Changes of the Dentition.
53. Cecil G. Muller, Omaha, Nebraska: Removable Appliances Fabricated of Stainless Steel.
54. Frank W. Nash, Scranton, Pennsylvania: "Early" Treatment—What Form?
55. S. Lehman Nyce, Norristown, Pennsylvania: Loose Bands.
56. William H. Oliver, Nashville, Tennessee: The Occlusal Guide Plane.
57. Kyrle W. Preis, Baltimore, Maryland: Habits Affecting Dental Occlusion.
58. Samuel Pruzansky, Skokie, Illinois: Oblique and Other Cephalometric Projections.
59. Kaare Reitan, Oslo, Norway: Stabilization of Class II Cases.
60. John W. Richmond, Kansas City, Kansas: Transfer Patient Responsibilities.
61. Robert M. Ricketts, Pacific Palisades, California: The Influence of Orthodontics on Facial Growth.
62. Richard A. Riedel, Seattle, Washington: Mixed Dentition Treatment.
63. Emil O. Rosenast, Camden, New Jersey: Class I or Pseudo Class III?
64. Willis F. Sage, Plainfield, New Jersey: Maximum Tooth Movement—Minimum Force.
65. Raymond C. Sheridan, South Orange, New Jersey: Parent-Patient Relations.
66. W. B. Stevenson, Amarillo, Texas: Transfers and Good Public Relations.
67. Arnold E. Stoller, Seattle, Washington: Light-Force Therapy.
68. J. Daniel Subtelny, Rochester, New York: Cleft-Palate Orthodontics.
69. Boyd W. Tarpley, Birmingham, Alabama: The Treatment of Class II Malocclusion.
70. Raymond C. Thurow, Madison, Wisconsin: Improving Cephalometric Films.
71. Faustin N. Weber, Memphis, Tennessee: Serial Extraction Procedure.
72. Raymond L. Webster, Providence, Rhode Island: Appliance Therapy in Mixed Dentition.
73. Clifford L. Whitman, Hackensack, New Jersey: Habit Correction.
74. Wendell L. Wylie, San Francisco, California: Workings of the A.B.O.
75. Louis E. Yerkes, Allentown, Pennsylvania: Factors in Retention.

2:15 P.M.

REGISTERED ATTENDANCE LECTURE-CLINICS, FIRST SESSION. (Room assignments will be made at the time of the meeting)

*Presiding Chairman:* Frank P. Bowyer, Chairman, Registered Attendance Clinics.

1. C. P. Adams, Ireland: Potentialities of Treatment With Removable Appliances.
2. Philip E. Adams, United States: Labio-Lingual Applications and Variations.

3. C. F. Ballard, England: An Analysis of Morphological Variation as a Basis for Treatment Planning.
4. P. Raymond Begg, Australia: The Light Arch-Wire Technique and Some Biological Problems.
5. Newton de Castro, Brazil: An Adequate Equalization of Class II Malocclusion.
6. George B. Crozat, United States: The Philosophy Underlying the Use of Removable Appliances.
7. R. B. Dockrell, Ireland: The Ideal Occlusion of the Teeth as a Diagnostic Aid.
8. Samuel Fastlicht, Mexico: Clinical Procedures in the Treatment of Impacted Cuspids.
9. Vernon Fisk, Canada: Management of Cases Having Congenitally Missing Teeth.
10. E. P. Harvold, Norway (Canada): Planning Orthodontic Cleft Palate Therapy.
11. Rudolph Hotz, Switzerland: Early Planned Extractions of Deciduous and Permanent Teeth as an Aid in Simplification of Orthodontic Treatment.
12. J. H. Hovell, England: Assessment of Soft Tissue Patterning Factors in the British Approach to Orthodontics.
13. S. J. Kloehn, United States: Analysis and Treatment of Class II Malocclusion With Cervical Anchorage.
14. B. S. Kjellgran, Sweden: Serial Extractions.
15. Gustav Korkhaus, Germany: Active and Passive Removable Appliances.
16. Hugo Lager, Denmark: Principles of Removable Appliance Therapy Related to Growth and Development.
17. Anders Lundström, Sweden: The Effect of Unilateral Hypoplasia and Asymmetry in Tooth Size on the Development of the Dental Arch.
18. Giorgio Maj, Italy: Cephalometric Approach to Diagnosis and Prognosis of Malocclusions.
19. C. E. Martinek, United States: Treatment Management.
20. Kaare Reitan, Norway: Consideration of Tissue Reaction in Treatment and Retention.
21. Robert Ricketts, United States: The Head X-Ray in Diagnosis and Treatment Planning.
22. J. H. Scott, Ireland: The Growth of the Human Face.
23. A. E. Stoller, United States: Philosophy and Application of Light Force Therapy.

3:45 P.M.

REGISTERED ATTENDANCE LECTURE-CLINICS, SECOND SESSION.

*Thursday, April 28*

SCIENTIFIC MEETING (Terrace Room and West Ballroom)

*Honorary Presiding Officers:* Robert Y. Norton, President, Australian Society of Orthodontics, and Armando Werneck de Carvalho, Vice-President, Brazilian Society of Orthodontists.

*Presiding Chairman:* Kyrle W. Preis, President, Middle Atlantic Society of Orthodontists.

9 A.M.

A FOUNDATION FOR CEPHALOMETRIC COMMUNICATION (Condensed A.B.O. Thesis). Robert M. Ricketts (U. S. A.).

9:30 A.M.

THE CHALLENGE OF CLASS II MALOCCLUSION. Newton de Castro (Brazil).

10:30 A.M.

LIGHT WIRE TECHNIQUE. P. Raymond Begg (Australia).

11:30 A.M.

FINAL BUSINESS MEETING. Terrace Room.

ADJOURNMENT.



### **American Board of Orthodontics**

The next meeting of the American Board of Orthodontics will be held at the Shoreham Hotel in Washington, D. C., Monday, April 18, through Saturday, April 23, 1960. Orthodontists who desire to be certified by the Board may obtain application blanks from the Secretary, Dr. Wendell L. Wylie, University of California School of Dentistry, The Medical Center, San Francisco 22, California.

Applications for acceptance at the Washington, D. C., meeting, leading to stipulation of examination requirements for the following year, must be filed before March 1, 1960. To be eligible, an applicant must have been an *active* member of the American Association of Orthodontists for at least two years.

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### **American Association of Orthodontists**

#### **Registration of Nonmembers for Attendance at Annual Sessions**

To ensure full participation of all active members of the American Association of Orthodontists, the following classification of nonmembers eligible to attend and schedule of attendance fees, which will be charged at the time of registration, has been set up for the coming annual session of the Association at the Shoreham Hotel, Washington, D. C., April 24 to 28, 1960.

##### **A. No Attendance Fee.**

1. Full-time teachers in university dental schools.
2. Full-time graduate or postgraduate students in university orthodontic departments. It will be necessary to present a letter from the dean of the school certifying the status of the student.
3. Dentists from outside Canada or the United States of America who are members of recognized dental or orthodontic organizations.

##### **B. Attendance Fee—\$10.00.**

1. Associate or junior members of constituent societies of the American Association of Orthodontists.
2. Recent graduates of university orthodontic departments who are in Government Service.

##### **C. Attendance Fee—\$20.00.**

1. Recent graduates of university orthodontic departments who are not members of constituent societies of the American Association of Orthodontists.
2. Other guests.

Those persons who would be classified under the heading of C-1 or C-2 above are required to apply to the chairman of the Credentials Committee at least sixty days before the session for proper forms, which will require (a) written endorsement by two active members of the A. A. O. in the applicant's vicinity, (b) that the applicant be a member in good standing of the American Dental Association, and (c) that the applicant never has been rejected for membership in any of the constituent societies of the A. A. O.

Those persons who would be classified under the headings of A or B would be required only to submit credentials identifying themselves as being in one of these categories at the time of registration. Advanced reservations, which are by far most desirable, can be applied for by clearing one's credentials with the Credentials Committee by March 1, 1960.

Registration under categories C-1 and C-2 will, of necessity, be limited.

Daniel E. Shehan, Chairman  
Credentials Committee  
619 Medical Arts Bldg.  
Baltimore 1, Maryland

### American Association of Orthodontists Post-Convention Holiday

We have been informed by Dr. C. W. Carriek of Oberlin, Ohio, that arrangements have been made to transport all who desire by special Eastern Airlines plane to Bermuda direct from Washington, D. C., at the termination of the A. A. O.'s spring meeting on April 28, 1960. There arrangements have been made for accommodations at the wonderful new Hotel Bermudianna. The return trip will be on Sunday afternoon, in time for further air or train connections homeward. Those who desire to stay longer may do so. Dr. Carriek operated the postconvention cruise after the New York meeting in 1959. It is suggested that those interested contact him at the earliest possible moment.

### 1960 Milo Hellman Prize Essay Contest American Association of Orthodontists

The 1960 Milo Hellman prize essay contest is announced.

*Eligibility.*—Any member of the American Association of Orthodontists and any person affiliated with a recognized institution in the field of dentistry, associated with it as a teacher, researcher, or undergraduate student, or associated with a dental division of any recognized general hospital shall be eligible to enter the competition.

*Character of Essay.*—Each essay submitted must represent an original investigation and contain significant material in the art and science of orthodontics.

*Prize.*—A cash prize of \$500.00 is offered for the essay judged to be the winner. The committee, however, reserves the right to omit the award if, in its judgment, none of the entries is considered to be worthy. Honorable mention will be awarded to those authors taking second and third places. The first three papers will become the property of the American Association of Orthodontists and will be published in the AMERICAN JOURNAL OF ORTHODONTICS. All other essays will be returned to the authors.

*Specifications.*—All essays must be in English. They must be typewritten on 8½ by 11 inch white paper, double spaced, with at least 1 inch margins. Each sheet must be numbered and bound or assembled with paper fasteners in a "brief cover." Three complete copies of each essay, including all illustrations, tables, and bibliography, must be included. The name and address of the author must not appear in the essay. For purposes of identification, the title of the essay and the author's name, together with a brief biographical sketch which sets forth his or her dental and/or orthodontic training, present activity, and status (practitioner, teacher, student, research worker, etc.), should be typed on a separate sheet of paper and enclosed in a plain sealed envelope. The envelope should carry only the title of the essay.

*Presentation.*—The author of the winning essay will be invited to present it at the meeting of the American Association of Orthodontists to be held in Washington, D. C., April 24 through April 28, 1960.

*Judges.*—The entries will be judged by the Research Committee of the American Association of Orthodontists.

*Final Submission Date.*—No essay will be considered for this competition unless received in triplicate on or before March 7, 1960, by Dr. Faustin N. Weber, University of Tennessee School of Dentistry, 3387 Poplar Ave., Memphis, Tennessee.

Herbert I. Margolis, Chairman,  
Research Committee  
Tufts University School of  
Dental Medicine  
136 Harrison Ave.  
Boston 11, Massachusetts

### **American Association of Orthodontists 1960 Research Section Meeting**

Continuing the policy of recent years, the program will consist of a series of ten-minute research reports which may be presented orally or read by title only. All persons engaged in research are urged to participate in this program, which will be held April 24 through April 28, 1960, in Washington, D. C.

Each participant is asked to prepare a 250-word abstract for publication in the *AMERICAN JOURNAL OF ORTHODONTICS*. Abstracts for publication and the ten-minute oral presentation at the meeting should be carefully prepared to present an adequate description of the import of the investigation.

Forms for use in submitting the title and 250-word abstract of your research will be sent to each dental school orthodontic department and to any individual requesting one. Please send your title no later than March 7, 1960, to Dr. Ernest H. Hixon, University of Iowa School of Dentistry, Iowa City, Iowa.

*Herbert I. Margolis*, Chairman  
Research Committee  
Tufts University School of  
Dental Medicine  
136 Harrison Ave.  
Boston 11, Massachusetts.

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### **Central Section of the American Association of Orthodontists**

The Central Section of the American Association of Orthodontists will hold its next annual meeting Sept. 18 to 20, 1960, at the Park Plaza Hotel in St. Louis, Missouri. The program will be dedicated to the late Dr. Benno Lischer. A brief schedule follows:

#### *September 18*

Registration.  
Cocktail Party.

#### *September 19*

Registration.  
Scientific Sessions.  
Luncheon and Business Meeting.  
Cocktail Party.  
Dinner Dance.

#### *September 20*

Registration.  
Luncheon and Business Meeting.  
Table Clinics.

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### **Great Lakes Society of Orthodontists**

It has been necessary to change the dates of the 1960 meeting of the Great Lakes Society of Orthodontists. The meeting now is scheduled for Nov. 27 to 30, 1960, at the Netherland-Hilton Hotel in Cincinnati, Ohio.

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### **Northeastern Society of Orthodontists**

The next annual meeting of the Northeastern Society of Orthodontists will be held at the Hotel Waldorf Astoria in New York, New York, March 13 to 15, 1960.

### Pacific Coast Society of Orthodontists

Headliner for the 1960 meeting of the Pacific Coast Society will be Dr. Samuel Pruzansky. The meeting will be held February 21 to 24 in Palo Alto, California.

In addition to Dr. Pruzansky, Program Chairman Eugene E. West has announced that Dr. Carl Ellertson, pedodontist from Palo Alto and a diplomate of the American Board of Pedodontics, will present a paper dealing with observations made by pedodontists and their patients of the orthodontist and his practice.

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### Rocky Mountain Society of Orthodontists

The Rocky Mountain Society of Orthodontists will return to The Bishop's Lodge in Santa Fe, New Mexico, Sept. 25 to 28, 1960, for its annual meeting. The scientific program will feature Allan G. Brodie, Sr., and Silas J. Kloehn.

Nestled in the foothills of the magnificent Sangre de Cristo mountains in a superb setting of flowers and fruit trees, The Bishop's Lodge, one of America's finest ranch resorts, is only five minutes from the ancient plaza of Santa Fe. The resort takes its name from the charming chapel and small adobe house which the late Archbishop Lamy built in this garden spot a most a century ago. The detailed story of the chapel and the man who built it is beautifully told in Willa Cather's "Death Comes to the Archbishop." The chapel's fascination derives equally from its historic authenticity and its genuine charm, and many guests find it a romantic as well as an inspiring spot.

The Bishop's Lodge is the perfect place for combining serious business with fun and relaxation. The lectures will be held in completely modern, well-ventilated rooms with every conference facility. Lectures over, there will be time for recreation, with swimming, tennis, riding, and shuffleboard available right at the Lodge.

The Spanish town of Santa Fe is a century older than the rest of the United States, and a visit here is like a "trip abroad at home." With its narrow, winding streets, its native architecture, the sound of Spanish spoken in the streets and shops, and a large and colorful art colony, it is almost like a foreign land.

Piñon-covered hills a few miles from the city shelter primitive villages of woodcarvers and weavers. Adobe Indian pueblos sleep in the sun, their inhabitants still clinging to their centuries-old pagan dance rites and customs. Bandelier National Monument, a short drive from the Lodge, is the site of ancient cliff dwellings and the most famous prehistoric Indian ruins in the Southwest. New Mexico is rightly called the Land of Enchantment.

Five outstanding museums, including the world-famous Museum of International Folk Art, serve as a focal point for Santa Fe's flourishing art and cultural colonies. Unusual shops abound, featuring regional arts and crafts, handmade Indian jewelry, distinctive Southwestern and patio fashions, and unusual gifts and imports.

Those of you who drive to the meeting will find The Bishop's Lodge in the enchanting Tesuque Valley just north of Santa Fe. The Santa Fe Railroad, Transworld Airlines, and Continental Airlines serve the city.

The average daytime temperature in September is 72.9 degrees, the average nighttime temperature is 49.1 degrees. You will find the early fall days in this lovely setting ideal and stimulating.

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### Lancaster Cleft Palate Clinic

The Lancaster Cleft Palate Clinic announces that a seminar in diagnosis, research, and treatment of persons with oral-facial-speech handicaps will be held April 4 to 7, 1960. Members of the dental, medical, and speech professions may obtain applications by writing Dr. M. Mazaheri, Chief—Dental Services, Lancaster Cleft Palate Clinic, 24 North Lime St., Lancaster, Pennsylvania.



### White House Conference on Youth

The American Association of Orthodontists was asked to designate two persons to attend and represent the A. A. O. at the White House Conference on Youth in Washington, D. C., March 27 to April 2, 1960. Those selected were Frederick R. Aldrich, chairman of the Committee on Public Relations, and J. A. Salzmänn, chairman of the Committee on Public Health.

The American Dental Association Secretary has appointed three persons to represent the A.D.A. They are Charles H. Patton, president-elect; C. Willard Camalier, assistant secretary; and Mr. Perry Sandell, director of the Bureau of Dental Health Education.

These conferences are held every ten years for the purpose of promoting opportunities for children and youth to realize their full potential for a creative life in freedom and dignity.

The American Dental Association is one of many organizations taking part in the conference. State and component societies are working at the state and local levels to plan programs of action which will further the success of the White House Conference.

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### American Dental Association\*

SHIFT BURDEN OF PROOF FOR AD CLAIMS TO MANUFACTURERS: DR. JESERICH

Pres. Paul H. Jeserich has recommended that burden of proving dentifrice advertising claims be given to manufacturers. He challenged the present situation under which Federal Trade Commission must prove claims to be false in enforcement actions against advertisers. Addressing the 35th Greater New York Dental Meeting last week, Dr. Jeserich declared, "There is no sound reason why advertisers who choose to make representations as to the health benefits of their products should not, upon reasonable cause shown, be called on to substantiate these representations with scientifically acceptable evidence." In the light of this thinking, Dr. Jeserich recommended that FTC be empowered to request scientific proof of advertised claims from dentifrice manufacturers. He made two other recommendations on behalf of the Association aimed at protecting the public against false and misleading advertising. They were:

- That Congress enact legislation to permit federal agencies to control distorted advertising.
- That codes of fair advertising practices be effected for dentifrices, possibly through cooperation of federal agencies and manufacturers.

NEW PUBLIC RELATIONS PUBLICATION PLANNED BY BUREAU

A new publication, to be known as *Dental PR Exchange*, will make its debut early in 1960, according to William A. Logan, director of the Bureau of Public Information. The publication will be designed to give constituent and component societies details of successful public relations programs as well as to suggest hints which will assist societies in this area. *Exchange* is expected to be published bimonthly at first and monthly later, according to Logan. He asked societies to provide the Bureau with details of successful public relations projects they have conducted for possible publication in *Dental PR Exchange*.

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### American Dental Association Film Library†

*Preview Panels; Film Rating and Analysis Project.* All films submitted for consideration by the Association are evaluated by one or more film preview panels. These panels, composed of general practicing dentists, dental school faculty, student and auxiliary groups, specialist and study groups, Association Councils and staff, provide evaluative data on a wide range of films related to dentistry and thus endeavor to influence the production of films on dental subjects and to improve the effectiveness of the use of the film medium in communicating ideas.

\*Excerpts from the *A. D. A. News Letter*, Dec. 15, 1959.

†Digested from a release of the American Dental Association.

Tabulation of the individual forms produces a weighted, composite, numerical rating supplemented by evaluative comment from all the panel participants. The rating and a film report are reviewed by the Council on Scientific Session for possible programming of the film in the Motion Picture Program at the A.D.A.'s annual session. If an annual dental motion picture award program now under consideration, is adopted, the ratings of the preview panels will help to determine the award winners. The Film Library uses the rating and evaluative information in considering the possible acquisition and distribution of the film. When more data are collected, the evaluative information will be made available to the film user for the better selection and use of film. Finally, a composite rating and film report are returned to the author and film producer.

In addition to producing valuable data on the film, the previewing operation provides the panel with program material on specific interest areas.

*How It Works.*—The American Dental Association Film Library maintains a preview panel mailing list of the names of persons actively interested in the film previewing operations. Names may be added to this list by request. A monthly Preview Schedule, listing the films submitted to the Film Library for rating and analysis as well as the "first preview" date for each film, is mailed to everyone on the mailing list. This "first preview" is conducted on Wednesday afternoons at the central office of the American Dental Association and is open to anyone who can attend. Films submitted to the Film Library for rating and analysis are requested for a period of one month starting with the first preview. After the first preview, the film is available to anyone who is willing to organize the qualified panel. Generally, a film can be previewed by two or three panels after the first preview.

The request for preview should originate, during the month following the date of the first preview, with the interested person or preview panel as soon as possible after receipt of the monthly Preview Schedule. Panel preference on previewing dates may be indicated, and every effort is made to meet requests for films and dates.

*Specialist Groups.*—In the interest of getting expert rating and analysis of the content of films on a specialized subject, unusual attention will be given to requests from national or international dental associations, colleges, academies, societies and boards for the preview of films in their special interest areas.

*Special Preview Rental Rate.*—Qualified preview panels may book films from the American Dental Association Film Library rental or reference collection at the special preview rate of \$1.50 per title, provided that evaluation forms are returned to the Film Library.

*Film Rating and Analysis Project Theory.*—This project, with its rating forms and procedures, is based on a theory of statistical judging. The validity of the rating produced by statistical judging is dependent on the size of the previewing group, factors of selectivity in collecting data, and weighting in the tabulation of scores. The burden of "expertness" is left to the individual preview panel participant who must qualify himself as a judge for the particular film he is rating.

In general, the object is to get as many ratings as possible in the limited time available for the previewing operation. In addition to selective viewing and critical analysis, weighted tabulation produces a composite rating of reasonable validity. The relatively objective results of statistical judging are refreshing in contrast to the highly subjective evaluations most commonly encountered in dealing with the audiovisual media.

Further information, with complete details as to balloting forms, etc., may be obtained from the American Dental Association Film Library, 222 East Superior St., Chicago 11, Illinois.

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### Notes of Interest

Jack M. Breuer, D.D.S., announces that he has moved his office to the Ossining Professional Bldg., 14 Church St., Ossining, New York, practice limited to orthodontics.

Dr. Murray J. Klauber announces the removal of his office to 191 North St., Buffalo, New York, practice limited to orthodontics.

Richard M. Skidmore, D.D.S., announces that his practice is now limited to orthodontics at Suburban Square Bldg., Ardmore, Pennsylvania.

### **Postgraduate Courses in Orthodontics**

#### **NORTHWESTERN UNIVERSITY**

Northwestern University Dental School will present postgraduate courses in "Analysis and Treatment of the Stomatognathic System for the Orthodontist" under the direction of John R. Thompson, D.D.S., M.S.D., M.S. (Course Leader). The courses will be given Feb. 22 to 24, 1960, in Thorne Hall, Superior Street at Lake Shore Drive, Chicago, Illinois.

#### **WASHINGTON UNIVERSITY**

A course in the labiolingual technique of orthodontic practice will be given at Washington University School of Dentistry, 4559 Scott Ave., St. Louis, Missouri, March 6 to 11, 1960. The course will be under the direction of Oren A. Oliver, D.D.S., LL.D., assisted by Boyd W. Tarpley, B.A., D.D.S., Harold K. Terry, B.S., D.M.D., and William H. Oliver, D.M.D.

Admission is limited to persons in the exclusive practice or teaching of orthodontics whose experience and background qualify them for the course. The class is limited to twenty-four students.

#### **Forthcoming meetings of the American Association of Orthodontists:**

1960—Shoreham Hotel, Washington, D. C., April 24 to 28.

1961—Denver Hilton Hotel, Denver, Colorado, April 16 to 21.

1962—Statler Hotel, Los Angeles, California, April 28 to May 3.

1963—Americana Hotel, Miami Beach, Florida, April 28 to May 2.

## OFFICERS OF ORTHODONTIC SOCIETIES

The AMERICAN JOURNAL OF ORTHODONTICS is the official publication of the American Association of Orthodontists and its component societies. The Editorial Board of the JOURNAL is composed of a representative of each of the component societies.

**American Association of Orthodontists**

(Next meeting April 24-28, 1960, Washington)

<i>President</i> , George M. Anderson	3700 N. Charles St., Baltimore Md.
<i>President-Elect</i> , William R. Humphrey	Republic Bldg., Denver, Colo.
<i>Vice-President</i> , Frank A. Heimlich	1824 State St., Santa Barbara, Calif.
<i>Secretary</i> , Earl E. Shepard	225 South Meramec, Clayton, Mo.

### Central Section of the American Association of Orthodontists

(Next meeting Sept. 18-20, 1960, St. Louis)

<i>President</i> , Leo B. Lundergan	- - - - -	8000 Bonhomme Ave., St. Louis, Mo.
<i>Secretary-Treasurer</i> , Kenneth E. Holland	- - - - -	1019 Sharp Bldg., Lincoln, Neb.
<i>Director</i> , Elmer F. Bay	- - - - -	216 Medical Arts Bldg., Omaha, Neb.

## Great Lakes Society of Orthodontists

(Next meeting Nov. 27-30, 1960, Cincinnati)

<i>President,</i>	Hunter I. Miller	- - - - -	1416 Mott Foundation Bldg., Flint, Mich.
<i>Secretary,</i>	Edward A. Cheney	- - - - -	1201 Bank of Lansing Bldg., Lansing, Mich.
<i>Director,</i>	Harlow L. Shehan	- - - - -	601 Jackson City Bank Bldg., Jackson, Mich.

## Middle Atlantic Society of Orthodontists

*President*, Kyrle W. Preis - - - - - 700 Cathedral St., Baltimore, Md.  
*Secretary-Treasurer*, Charles S. Jonas - - - - - Mayfair Apts., Atlantic City, N. J.  
*Director*, Louis E. Yerkes - - - - - 825 Linden Ave., Allentown, Pa.

## Northeastern Society of Orthodontists

(Next meeting March 13-15, 1960, New York)

<i>President,</i>	Wilbur J. Prezzano	- - - - -	Medical Centre, White Plains, N. Y.
<i>Secretary-Treasurer,</i>	David Mossberg	- - - - -	36 Central Park S., New York, N. Y.
<i>Director,</i>	Norman L. Hillyer	- - - - -	230 Hilton Ave., Hempstead, L. I., N. Y.

## Pacific Coast Society of Orthodontists

(Next meeting Feb. 21-24, 1960, Palo Alto)

<i>President</i> , Richard Railsback	- - - - -	1333 Grand Ave., Piedmont, Calif.
<i>Secretary-Treasurer</i> , Warren Kitchen	- - - - -	2037 Irving St., San Francisco, Calif.
<i>Director</i> , Richard Railsback	- - - - -	1333 Grand Ave., Piedmont, Calif.

## Rocky Mountain Society of Orthodontists

(Next meeting Sept. 25-28, 1960, Santa Fe)

<i>President</i> , William A. Blueher	- - - - -	801 Encino Pl., Albuquerque, N. M.
<i>Secretary-Treasurer</i> , E. H. Mullinax	- - - - -	8790 W. Colfax, Lakewood, Colo.
<i>Director</i> , Ernest T. Klein	- - - - -	707 Republic Bldg., Denver, Colo.

## Southern Society of Orthodontists

*President*, M. D. Edwards - - - - - 132 Adams St., Montgomery, Ala.  
*Secretary-Treasurer*, William H. Oliver - - - - - 1915 Broadway, Nashville, Tenn.  
*Director*, Boyd W. Tarpley - - - - - 2118 Fourteenth Ave., S., Birmingham, Ala.

## Southwestern Society of Orthodontists

(Next meeting Sept. 25-28, 1960, Kansas City, Kan.)

*President*, John W. Richmond - - - - - 493 Brotherhood Bldg., Kansas City, Kan.  
*Secretary-Treasurer*, Tom M. Matthews - - - - - 8215 Westchester Dr., Dallas, Texas  
*Director*, Nathan Gaston - - - - - 701 Walnut St., Monroe, La.

**American Board of Orthodontics**

*(Next meeting April 18-23, 1960, Washington)*

<i>President,</i> L. Bodine Higley	- - - -	University of North Carolina, Chapel Hill, N. C.
<i>Vice-President,</i> Jacob A. Salzmann	- - - -	654 Madison Ave., New York, N. Y.
<i>Secretary,</i> Wendell L. Wylie	- - - -	University of California School of Dentistry, The Medical Center, San Francisco, Calif.
<i>Treasurer,</i> Paul V. Reid	- - - -	1501 Medical Arts Bldg., Philadelphia, Pa.
<i>Director,</i> B. F. Dewel	- - - -	708 Church St., Evanston, Ill.
<i>Director,</i> Frank P. Bowyer	- - - -	608 Medical Arts Bldg., Knoxville, Tenn.
<i>Director,</i> Alton W. Moore	-	University of Washington School of Dentistry, Seattle, Wash.